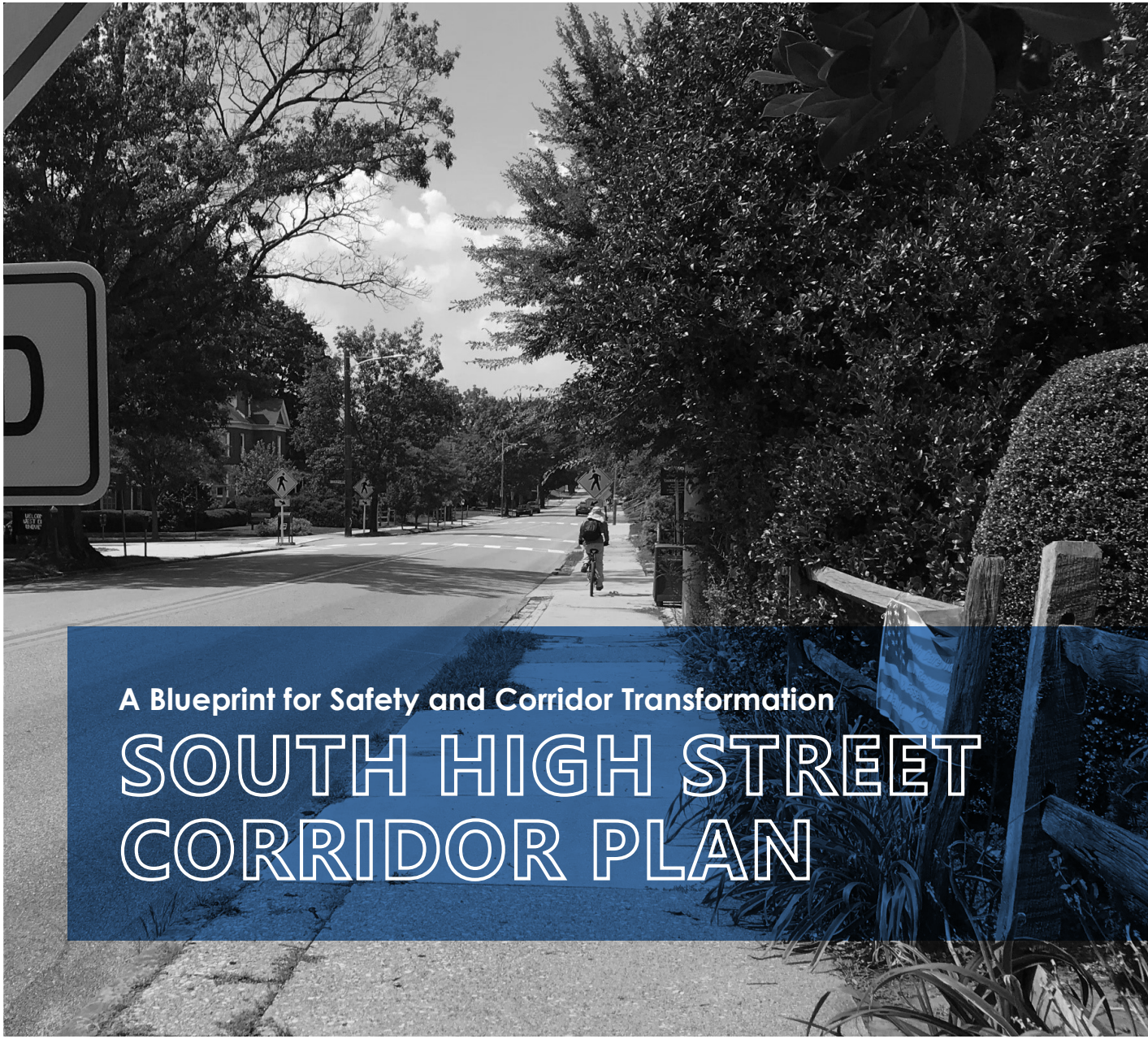

A Blueprint for Safety and Corridor Transformation

SOUTH HIGH STREET CORRIDOR PLAN

December 2020

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Acknowledgments

South High Street Corridor Plan

This corridor study, with funding from the Chester County's Vision Partnership Program, provides a long-term planning blueprint for safely accommodating all users of High Street in the Borough of West Chester, Chester County, PA. This plan is intended to serve as a resource to West Chester Borough, West Chester University, PennDOT, SEPTA, and all corridor stakeholders to guide the improvement and transformation of South High Street.

PROJECT SPONSOR

West Chester Borough
401 E. Gay Street
West Chester, PA 19380

FUNDING PROVIDED BY

Chester County Vision Partnership Program

CONSULTANT

Traffic Planning and Design, Inc.
1025 Andrew Drive, Suite 110
West Chester, PA 19380

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Vince Cerbone, *PennDOT District 6-0*

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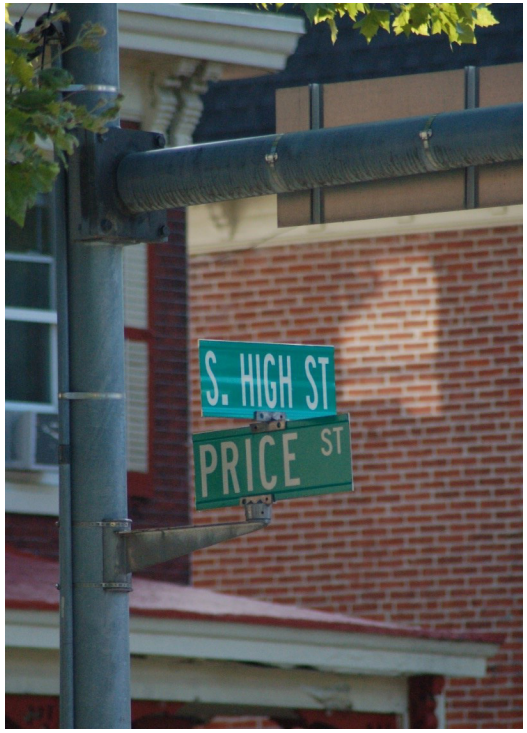
Crafting a Corridor Plan for High Street

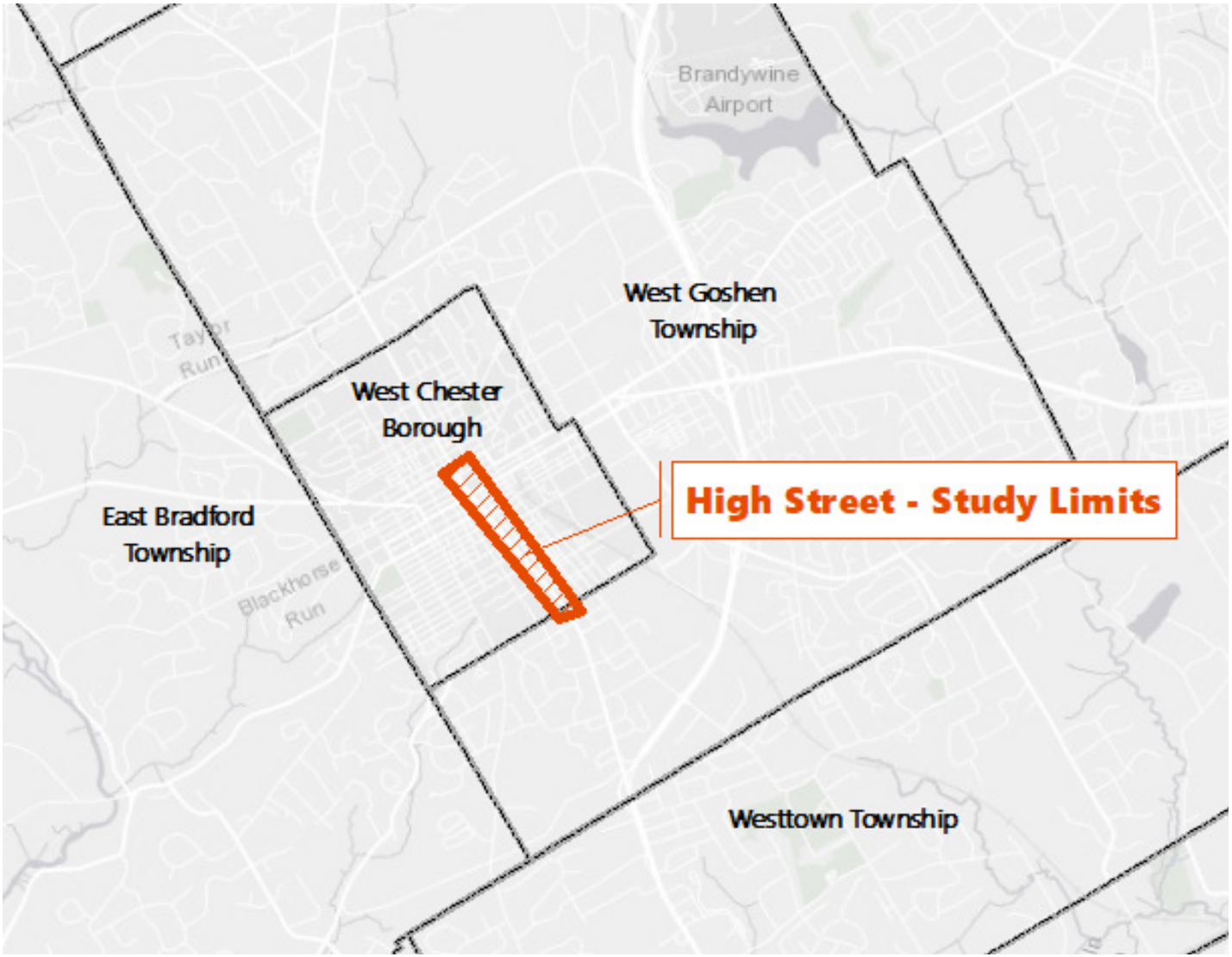
CRAFTING A CORRIDOR PLAN FOR HIGH STREET



As the primary north-south roadway connecting downtown West Chester to West Chester University, High Street is a bustling corridor for all modes: cars, trucks, buses, pedestrians, and even bicyclists. An average of 14,000 to 17,000 vehicles a day traverse the blocks of South High Street, two SEPTA bus routes, countless pedestrians, and a small number of bicyclists -- whether on-road or on the sidewalk. At approximately 34 feet across curb-to-curb, High Street (a PennDOT-owned roadway) shoulders a significant demand for space, accommodating on-street parking for businesses and residents and much-needed left-turn bays at signalized intersections. Perhaps due to all these demands, South High Street doesn't have quite the "polish" or cohesiveness that North High Street or Market Street or Gay Street enjoys. South High Street today has more grit than polish. The distinctive brick sidewalks – iconic of West Chester – have been disrupted by mature trees or replaced entirely with less-distinct concrete sidewalks. For all of its busyness and pedestrian activity (night and day), High Street today is sporadically and inconsistently lit. The corridor lacks ornamental street lighting (which is prevalent across the downtown business improvement) and intersection lighting – especially at its many crosswalks – doesn't meet current lighting standards.

Given the key role that South High Street plays in the fabric of West Chester, this corridor plan seeks to develop a cohesive vision and blueprint for improving South High Street. It is a plan that will guide the efforts of the Borough, PennDOT, West Chester University, or any private redevelopment that is proposed in the future. Just as importantly, it serves as a plan that improves safety for all users: pedestrians, motorists, bicyclists, and transit riders and ultimately, a plan that transforms South High Street in a manner that aligns its form with its critical function.

Figure 1: Study Context and Limits



A PLAN FOR IMPROVING MULTIMODAL USER SAFETY

The South High Street Corridor (Chestnut Street to Rosedale Avenue) experienced 138 reportable crashes between 2014 and 2018. Over this five-year period, **onequarter of these crashes (34) involved a pedestrian.** Therefore, a primary focus of this Corridor Plan is to improve the safety of High Street for all users, modes, and abilities.

KNITTING TOGETHER MULTIPLE PARTIES AND PROJECTS

Prior to the commencement of this Corridor Plan, both West Chester Borough and PennDOT recognized the need for improving South High Street. Both agencies were pursuing funding to improve the Corridor. Additionally, West Chester University had completed its own campus master plan, which included recommendations for South High Street. Yet, in the absence of a cohesive corridor plan, these projects were being advanced somewhat independently of one each another without a consistent design palette or vision. Therefore, this Corridor Plan establishes the framework and vision for High Street. These projects – collectively a multi-million dollar investment in South High Street – provide an opportunity to immediately implement the Corridor Plan.

Chester County Community Revitalization Grant

Through the Chester County Community Revitalization Program (CRP), the Borough has secured $400,000 of funding to conduct improvements along High Street. West Chester Borough is matching this grant with $100,000 of local funding. According to the Chester County Community Development Department, the CRP program provides funding for infrastructure improvements, streetscape activities, economic development opportunities, and other projects that promote revitalization of Chester County's urban centers. This will provide construction funding to complete a large part of the improvements recommended in this plan along the southern portion of High Street around the Campus area.

PennDOT Highway Safety Funding

PennDOT District 6-0 applied for design and construction funding through the Federal Highway Safety Improvement Program (HSIP) for the section of High Street between Rosedale Avenue and Miner Street. This section of roadway met the criterion to qualify for funding through this program as it contained several crash clusters, including pedestrian crashes, bicycle crashes, rear-end crashes, and other focal points of the program. PennDOT Central Office performed a statewide network screening analysis based on the Highway Safety Manual that goes beyond the number of reportable crashes to include speed limits, the number of travel lanes and several other factors. The High

Figure 2: Concept plans for the proposed Presidential Walk

Street corridor experienced higher than expected crash rates based on other roads with a similar topology. While High Street does qualify for the HSIP program, it was not selected for funding through PennDOT's statewide competitive funding application process to receive federal funding. PennDOT District 6-0 then applied to the Delaware Valley Regional Planning Commission (DVRPC) for regional HSIP funding through the 2021 Transportation Improvement Program. This project has been selected for funding by DVRPC for funding in the Fiscal Year 2021-24 Transportation Improvement Plan to receive a total of just over $1.8 million. This funding is to design and install streetscaping items, signalization improvements, as well as provide lighting and pedestrian improvements along the High street Corridor.

West Chester University - Presidential Walk

West Chester University identified a significant reconfiguration to the pedestrian connection from the Rosedale Avenue/High Street intersection to the academic quad within the University's Landscape Master Plan. The concept, known as the Presidential Walk, also would reconfigure the northwest corner of the High/Rosedale intersection with the installation of new hardscaping and a fountain feature. The University submitted land development plans to West Chester Borough in Spring 2020 to advance this concept to construction. The Consultant Team reviewed these plans and incorporated these concepts into the overall Corridor Plan.

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High Street - Today

Existing Conditions

High Street - Today

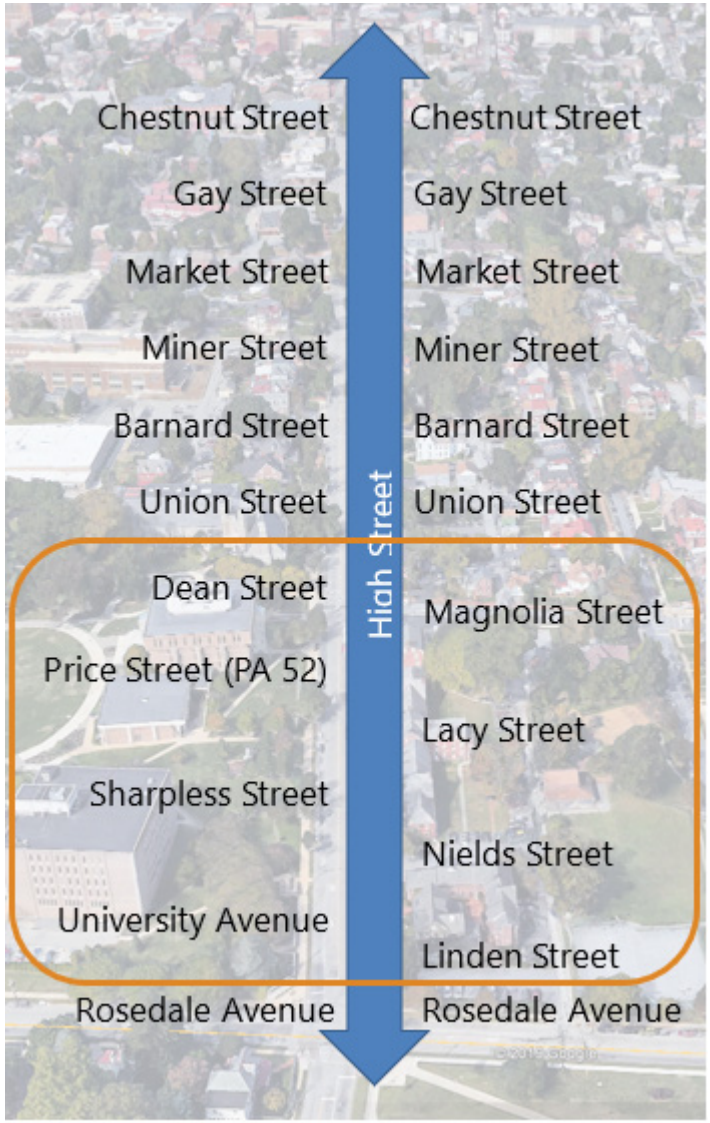
HIGH STREET - TODAY

High Street is the primary north/south roadway within West Chester Borough. By connecting West Chester's central business district to West Chester University as well as hosting a mixture of commercial businesses, High Street also functions as a "main street" corridor. When entering the Borough from the south, specifically when traveling northbound on US 202, High Street presents itself as a gateway to West Chester Borough.

High Street is a truly multimodal corridor. Several intersections experience thousands of pedestrian crossings on a daily basis as university students, faculty, residents and business employees traverse this corridor. In addition to serving vehicular and pedestrian traffic, SEPTA bus routes 92 and 104 provide service along the corridor. For a full summary of AM and PM traffic counts see the Appendix.

The "off-setting grid" of lower South High Street

While much of the Borough's street network follows a conventional grid-pattern, South High Street between Dean Street and Linden Street is laid out with an off-setting grid pattern – with South High Street serving like the seam stitching together two different, off-setting grid networks. Most notably in the context of this Corridor Plan, this off-setting street design creates several unsignalized intersections where pedestrians must cross High Street without the protection of a traffic signal. This stretch of High Street also coincides with large concentrations of off-campus housing; therefore, there are a large number of pedestrians traversing High Street.



Pedestrian Activity

To gain a better understanding of the corridor's pedestrian activity, the Consultant Team collected 12-hour pedestrian counts at all intersections between Price Street and Rosedale Avenue. During the course of 12-hours on this late-spring weekday, over 10,000 pedestrian crossings of High Street were observed. Approximately half of the High Street crossings occurred at the signalized intersection of Rosedale Avenue.

The intersection of High Street and Rosedale Avenue recorded almost 4,500 pedestrian crossings of High Street in a 12-hour period.

Figure 3: Weekday Pedestrian Crossings by Intersection/ Hour

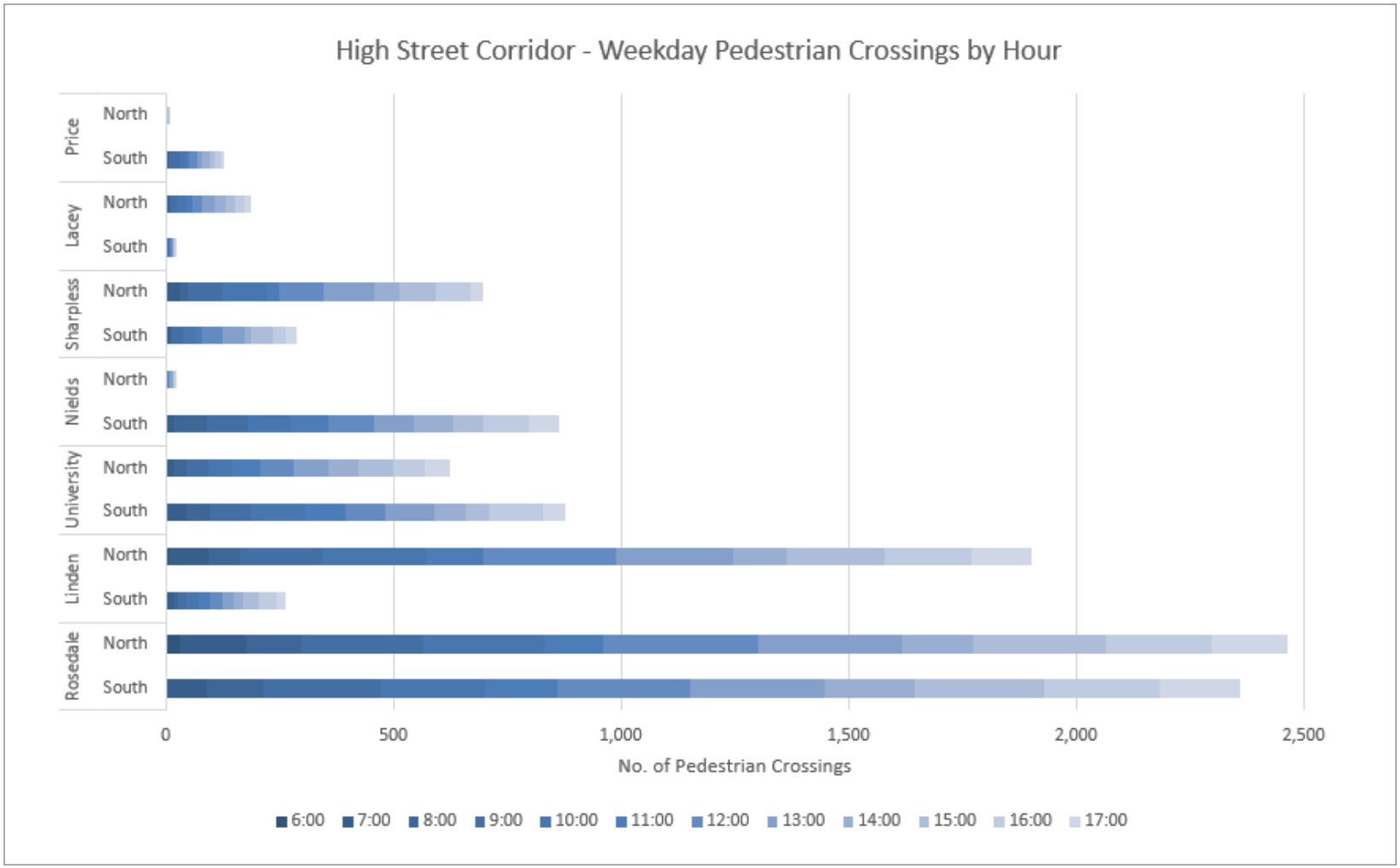
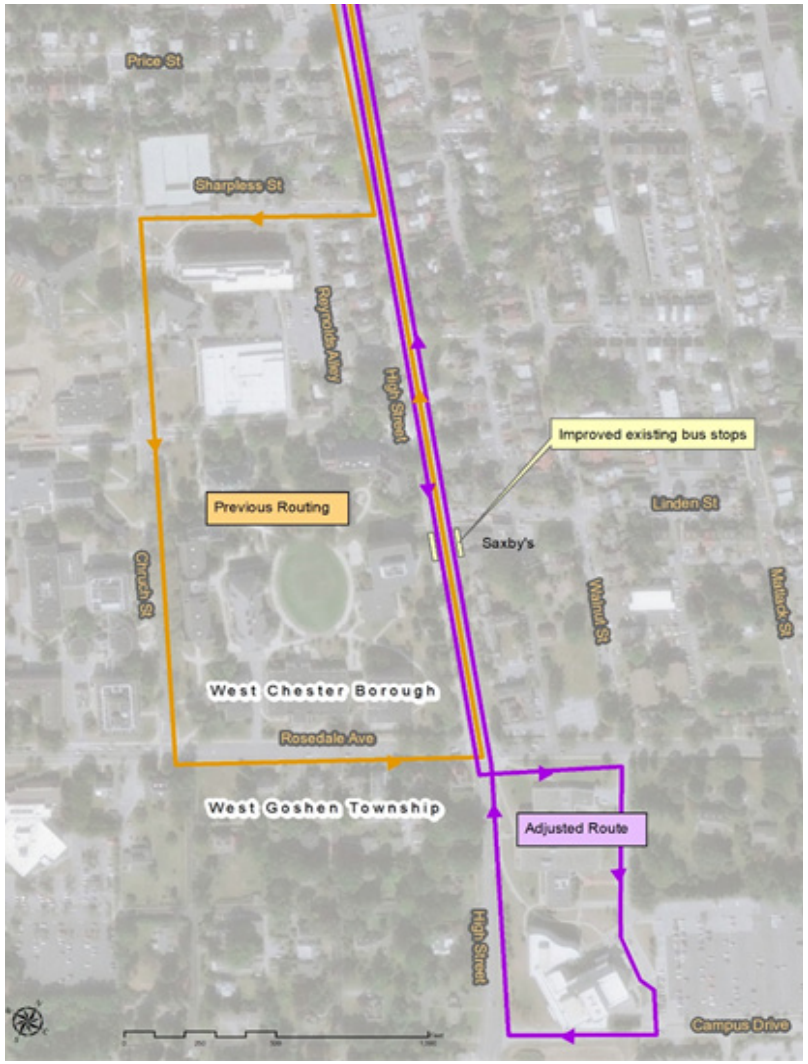


Figure 4: SEPTA 104 Routing (Previous and Current)



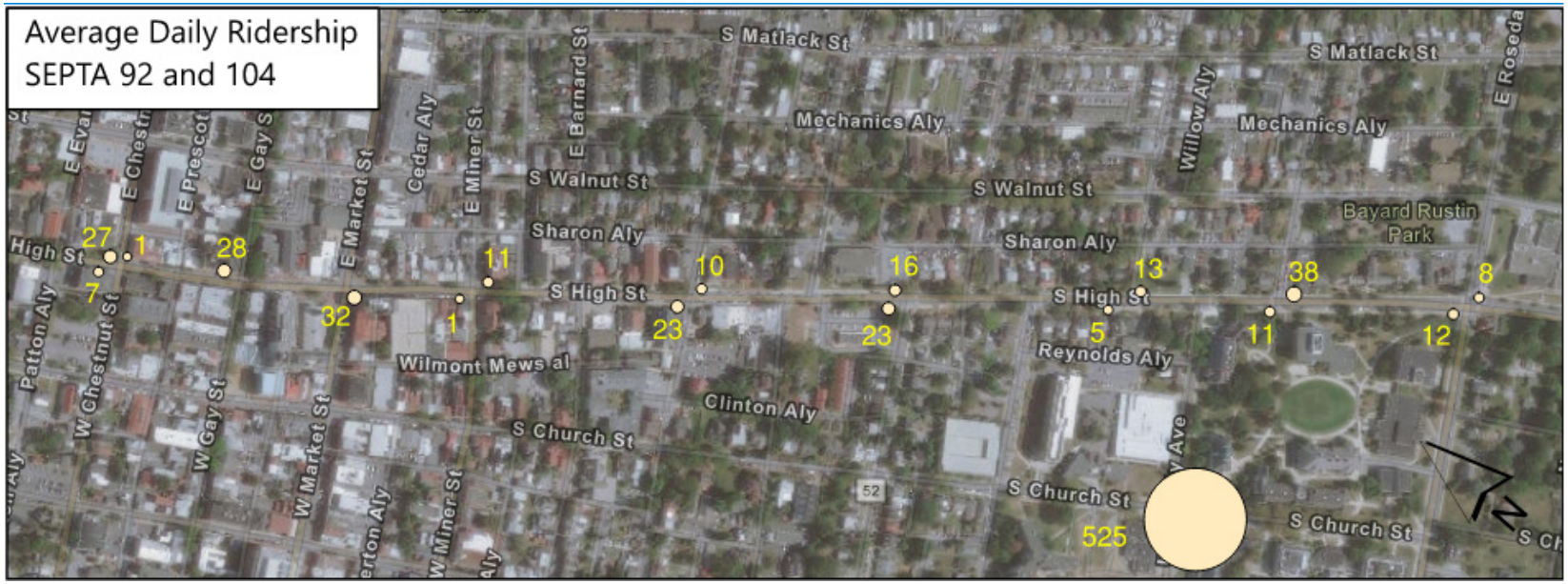
Transit Ridership

Two SEPTA routes, the Route 92 and 104, operate along South High Street. SEPTA's Route 92 operates from Exton to West Chester to Paoli/ King of Prussia, while SEPTA's Route 104 operates from West Chester to Upper Darby. Until 2018, SEPTA's Route 104 ran south along High Street before turning onto Sharpless Street and then down Church Street, with a main stop just south of University Avenue. Average daily ridership from this service pattern is displayed in Figure 5.

Since Fall 2018, however, both routes run entirely along High Street through the Study Area. From a transit perspective, these routing adjustments further elevate the importance of High Street. Unfortunately, in the present condition, there are no bus shelters or other transit amenities (e.g. trash receptacles, next-to-arrive information) along High Street.

Linden Street at High Street (NB) has become the main SEPTA 104 bus stop since the 104 route was moved off of Church Street

Figure 5: Average Daily Ridership - 2018



Note: numbers indicate combined boarding and departures. Based on SEPTA staff observations, the majority of boardings/alightings at the former University Avenue/Church Street bus stop have moved to High Street/Linden Street.

Lighting Conditions

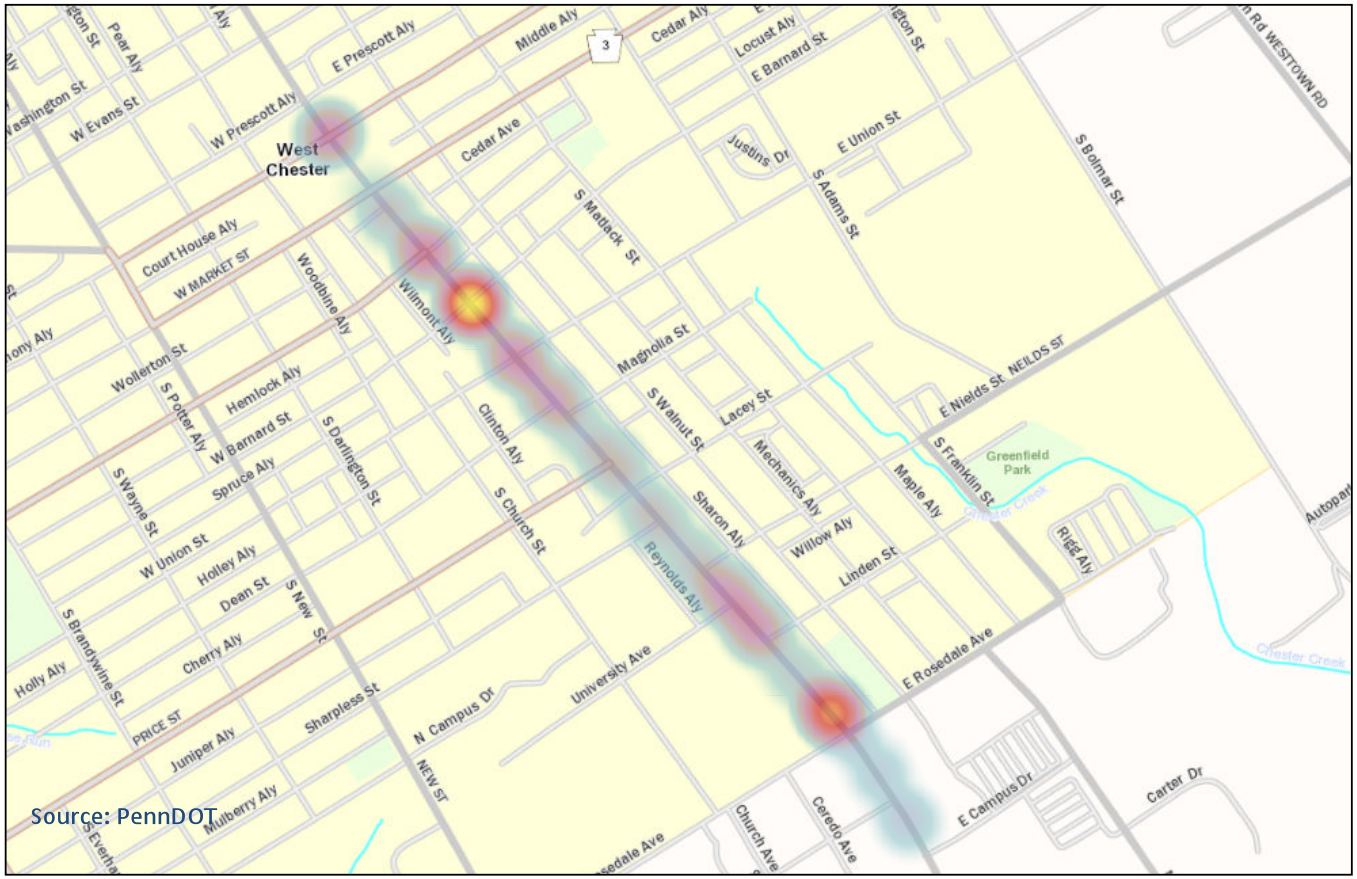
The current lighting within the study area is provided by a variety of pedestrian-scale and traffic scale lights in a non-uniform arrangement. The current lighting arrangement leaves many zones along the street and sidewalk illuminated to less than recommended levels. The measurement of the contrast between dark and light areas is referred to as uniformity, which is measured by comparing the maximum to minimum or maximum to average luminance. Due to the location and configuration of High Street, this is considered to be a collector street with high pedestrian volumes. In basic terms, the higher the numbers of vehicles and pedestrians, the brighter the street should be illuminated at night. Intersections, bus stops, and delineated pedestrian crossings should be even brighter.

Crash Analysis

The Consultant Team obtained all available crash data for the last five years (2014-2018) through PennDOT's crash reporting system. Additionally, the West Chester Borough Police Department provided data on non-reportable crashes and analysis. Collectively, the Consultant Team and Borough PD identified areas of high crash clusters, as summarized in Figure 6.

The area along High Street that has the highest concentration of crashes over the past five years is the intersection at Barnard Street. This is an unsignalized intersection with the 7-Eleven convenience store (a significant trip generator) located just south of the intersection. The second concentration of crashes occurs at the intersection of Rosedale Avenue and portions of High Street just north of the intersection, which has a large concentrations of pedestrian activity and crossings. The third location that stands out is the intersection at Gay Street, which is another intersection with heavy pedestrian crossings.

Figure 6: Total Crashes: 2014-2018



High Street Corridor Study:
Crash Analysis – Total Crashes 2014-2018

MAP PREPARED FOR:
West Chester Borough

0 0.25 0.5 Miles

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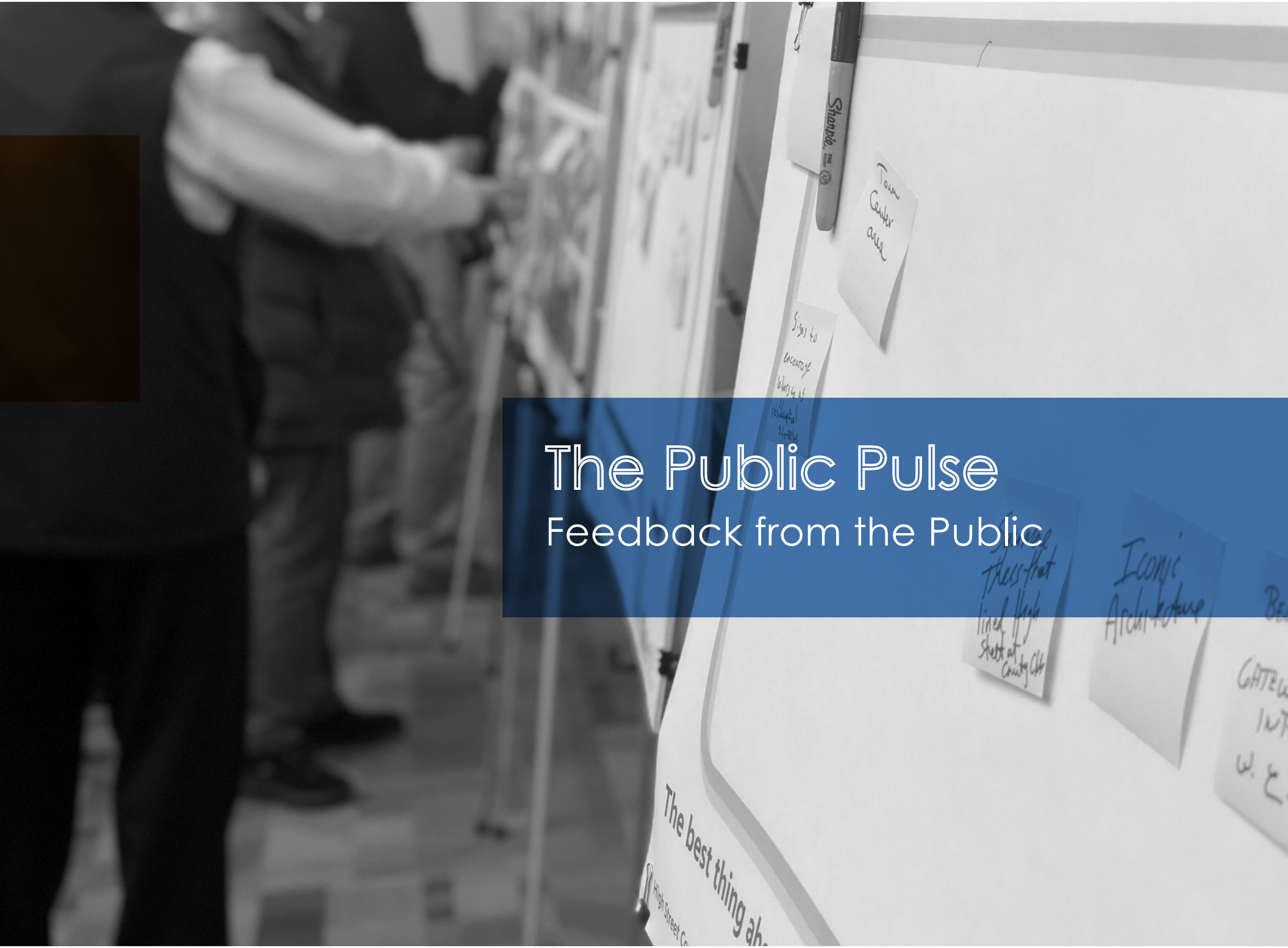


The Public Pulse

Feedback from the Public

The Public Pulse

THE PUBLIC PULSE

The first public meeting was held on January 30, 2020 and was attended by more than 75 attendees. The public was asked to visit several boards set up throughout the meeting room to share their thoughts on the corridor. They were asked to provide input on the following:

- The best thing about High Street is…
- The biggest issue with High Street is…
- As a driver or cyclist, the most concerning intersection is…
- I would improve High Street by…
- What improvements or amenities I would like to see on High Street…

The preceding pages summarize the feedback given by the public at this public meeting.

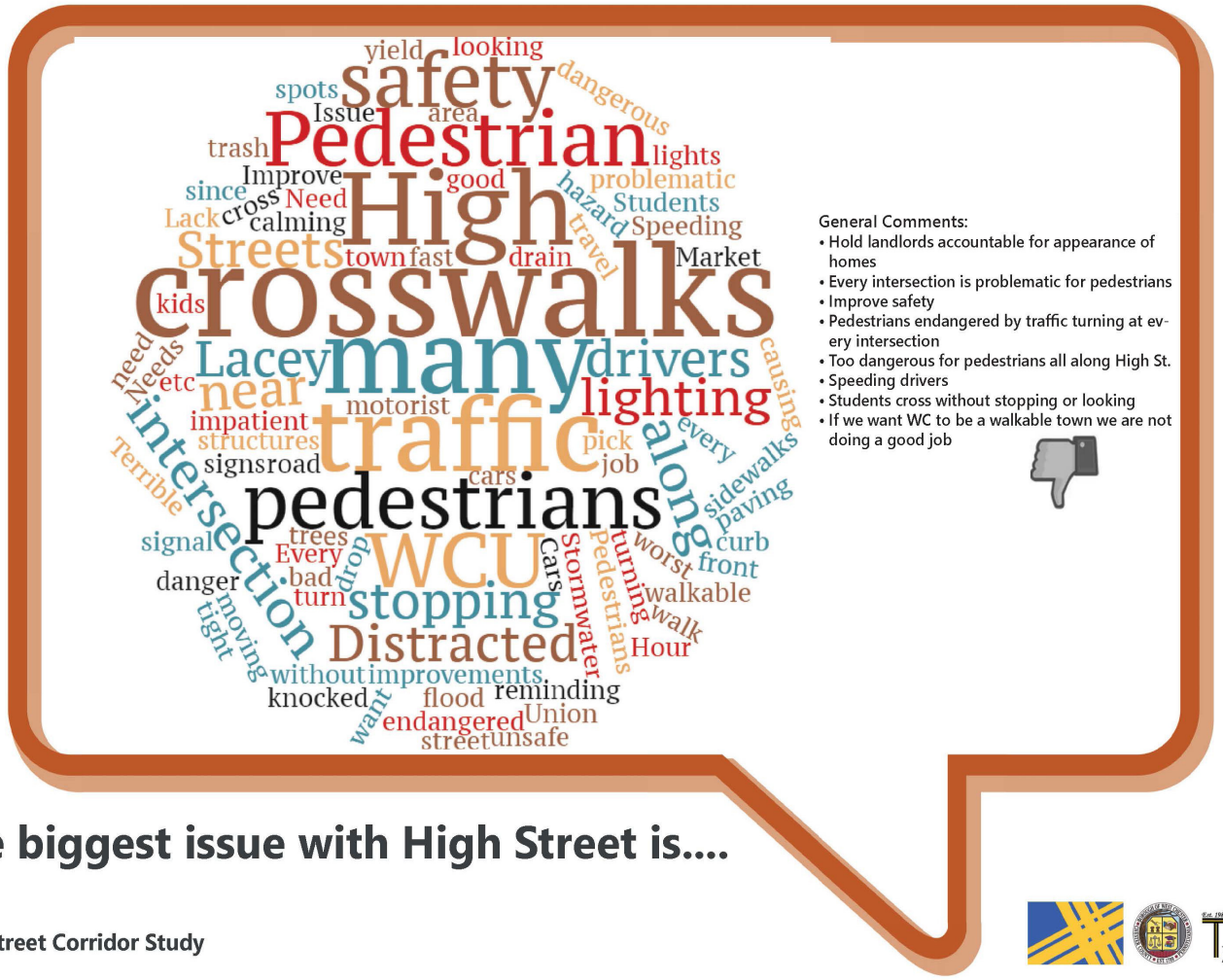
Overall, the public shared valuable insights that largely echoed the concerns of the Steering Committee and were supported by the existing conditions analysis. The Consultant Team incorporated intersection-specific comments and suggestions into the Corridor Improvement Plan, where appropriate.

What we like about High Street

Figure 7: What we like about High Street

What we see as High Street's challenges

Figure 8: The biggest issue with High Street



Specific Challenges

Figure 9a: Location-Specific Public Comments

- Drivers turn left onto Chestnut when exiting garage
- Left hand turns on red
- Safety - "Walk" signal comes on simultaneous with Northbound let turn lane

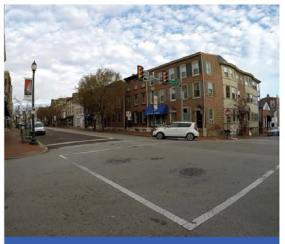
1) Chestnut St. and High St.

2) Gay St. and High St.

- Market & High is the worst
- Turn only lanes not clear for out-of-towners

- Turning Lanes

3) Market St. and High St.



4) Miner St. and High St.

As a driver, cyclist or pedestrian the most concerning intersection is...

Grab a sticky (or a few) and tell us what you think about the High Street Corridor. Use a Green sticky for "likes", and pink stickies for "concerns".
YOUR input will help inform our recommendations!

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Specific Challenges

Figure 9b: Location-Specific Public Comments

- 7-11 Parking lot is a hazard for pedestrians
- Danger!

- Needs 4-way stop light for pedestrians

- Need lighting & crosswalk markings
- Sight distance
- Needs lights
- Needs lighting and pedestrian safety signs

As a driver, cyclist or pedestrian the most concerning intersection is...

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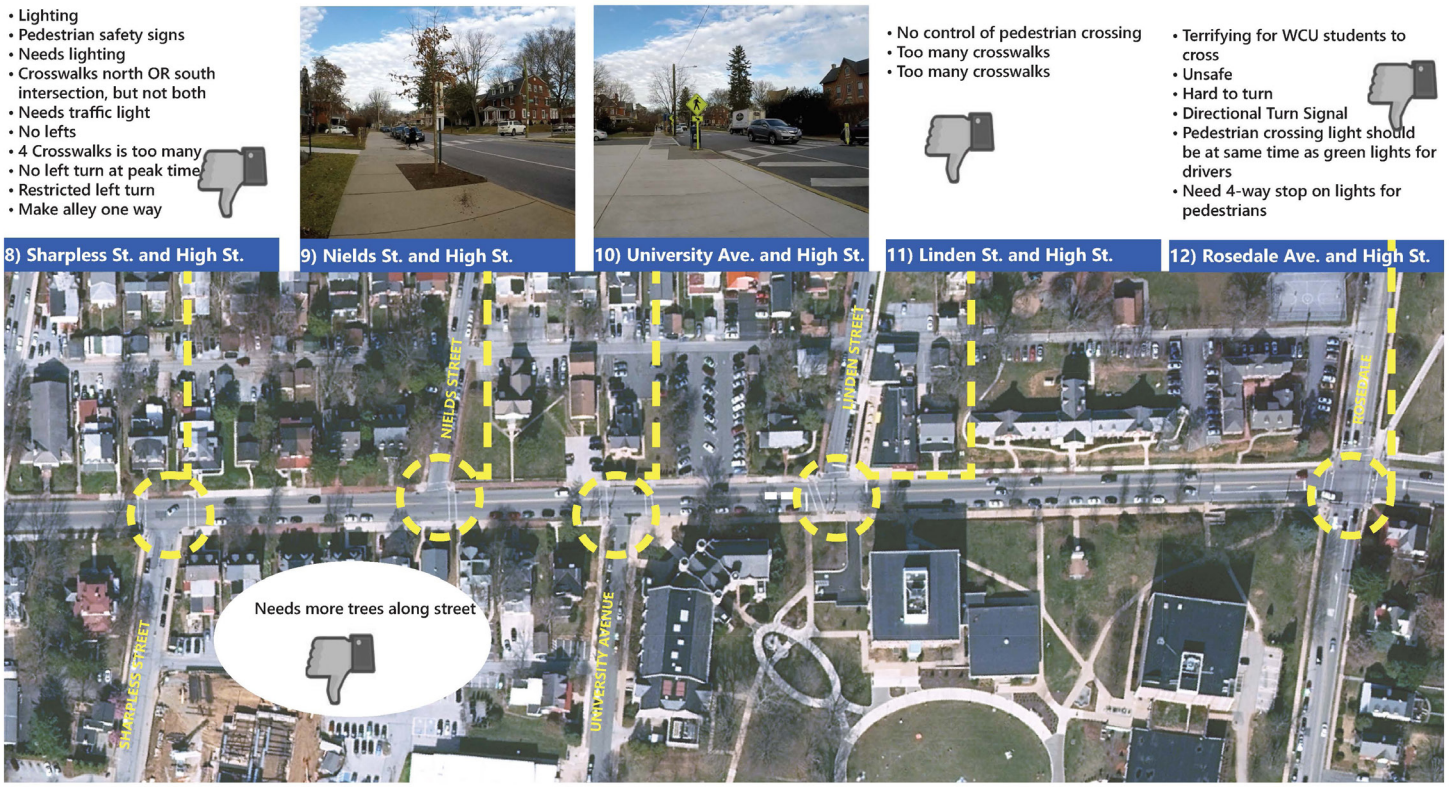
Specific Challenges

Figure 9c: Location-Specific Public Comments



As a driver, cyclist or pedestrian the most concerning intersection is...

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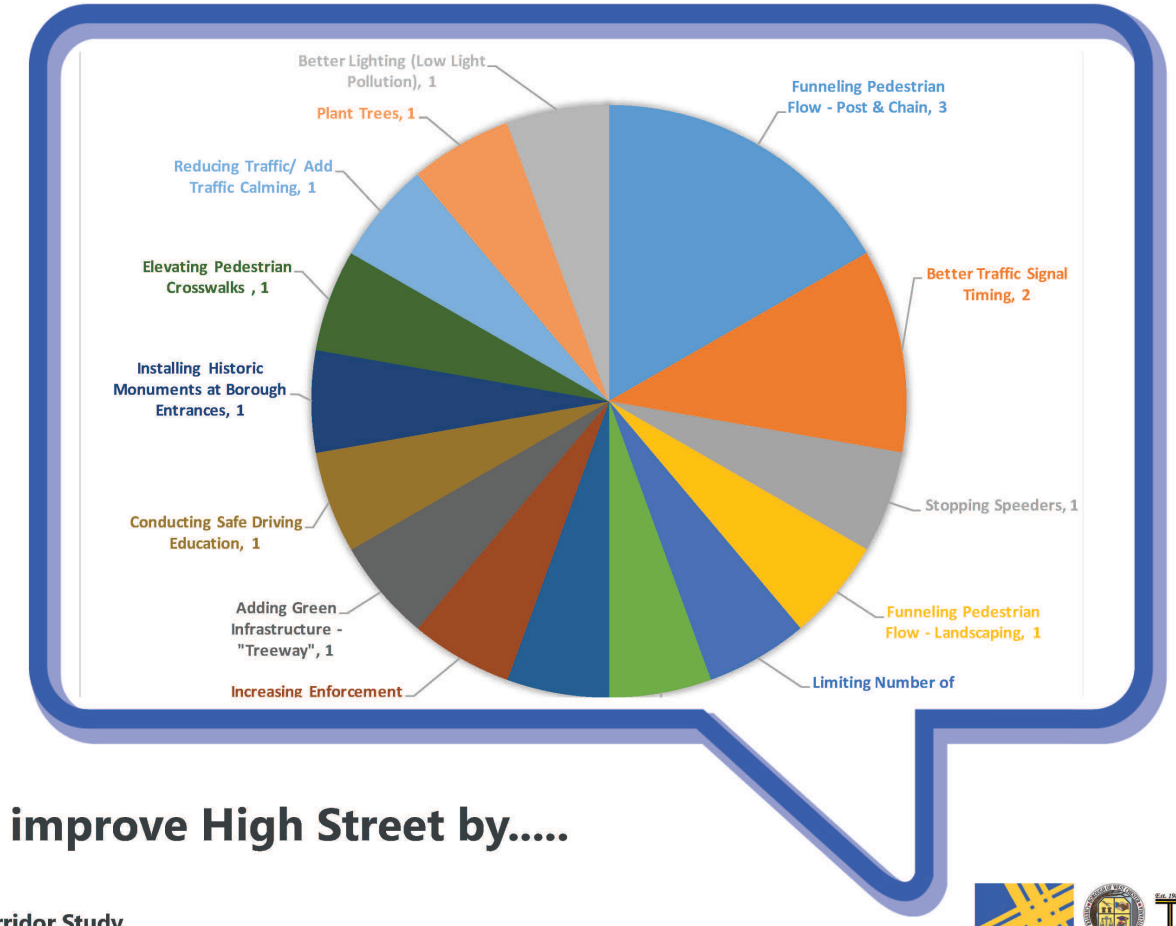
How we'd improve High Street

Figure 10: How we'd improve High Street



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A Refined Vision for High Street

Corridor Improvement Plan

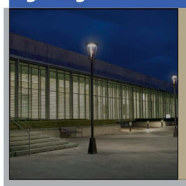
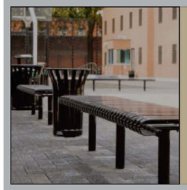
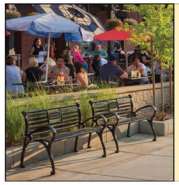
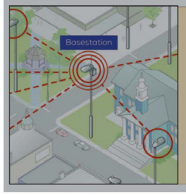
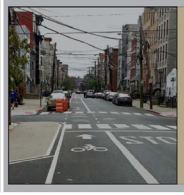
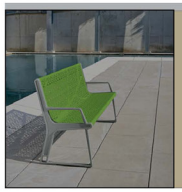
A Refined Vision for High Street

A REFINED VISION FOR HIGH STREET

Corridor Vision

The public comments and existing conditions data were synthesized to create a vision for the future of the High Street Corridor. While the health, safety and welfare of the public are the driving factors in the development of the corridor, aesthetics, comfort and consistency help to create an improved environment for all modes of travel along the corridor. The results of the public engagement were very clear, the public embraces the existing streetscape located within the Borough's Historic District, while desiring improvements for all modes along the corridor. The concept on the following pages presents this vision graphically and addresses the comments offered by the public.

Figure 11a: Public preferences for High Street

Litter Receptacles	Benches	Lighting	Pedestrian Crossing	Transportation Amenities
 12	 2	 3	 1	 5
 3	 2		 1	 3
 1	 8		 5	 1
	 1	 13	 14	 13
COMMENTS: More cans near Campus, Wraps for Big Bellys				

Grab 5 dots and tell us what you'd like to see.
If you have a different idea, feel free to put it on a sticky note.

What I'd like to see on High Street

High Street Corridor Study

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Figure 11b: Public preferences for High Street

Materials Palette

Materials create the fabric of an urban environment. These materials will create consistency and legibility of a streetscape and create a sense of place that is unique to the borough. The following materials were selected with input from the public, stakeholders and the steering committee. Examples of the selected materials can be seen on the summarized public input boards, "What I'd like to see on High Street" (Figure 10). The materials will include paving, furnishings, and green infrastructure. All of the materials selected will conform to the Borough's Subdivision and Land Development Ordinance, Appendix A, Article IV, Design Standards.

The ground plane of a streetscape is arguably the most important element. Safety, durability and aesthetics factor into the selection. The existing Historic District streetscape will be emulated using clay paver sidewalks (brick). This brick paving will strengthen the connection of the Historic Core to the West Chester University Campus. Brick paved sidewalks are vernacular to the Borough. They are durable, and allow for unnoticeable repair in the event of utility work. The timeless design of brick sidewalk embraces the historic feel of the Borough.

The vision for the corridor is to emulate the existing streetscape within the Borough's Historic core. (Image Credit: visitphilly.com)

Similarly, street furnishings were also chosen for many of the same reasons as paving materials and the public was clear in their input, the vision for the corridor was to extend the historic streetscape to campus. Benches, streetlighting, granite curbs, and planters should all match the vernacular forms found in the Historic District. Compacting trash and recycling receptacles have been proven elsewhere in the Borough and are also recommended along this corridor.

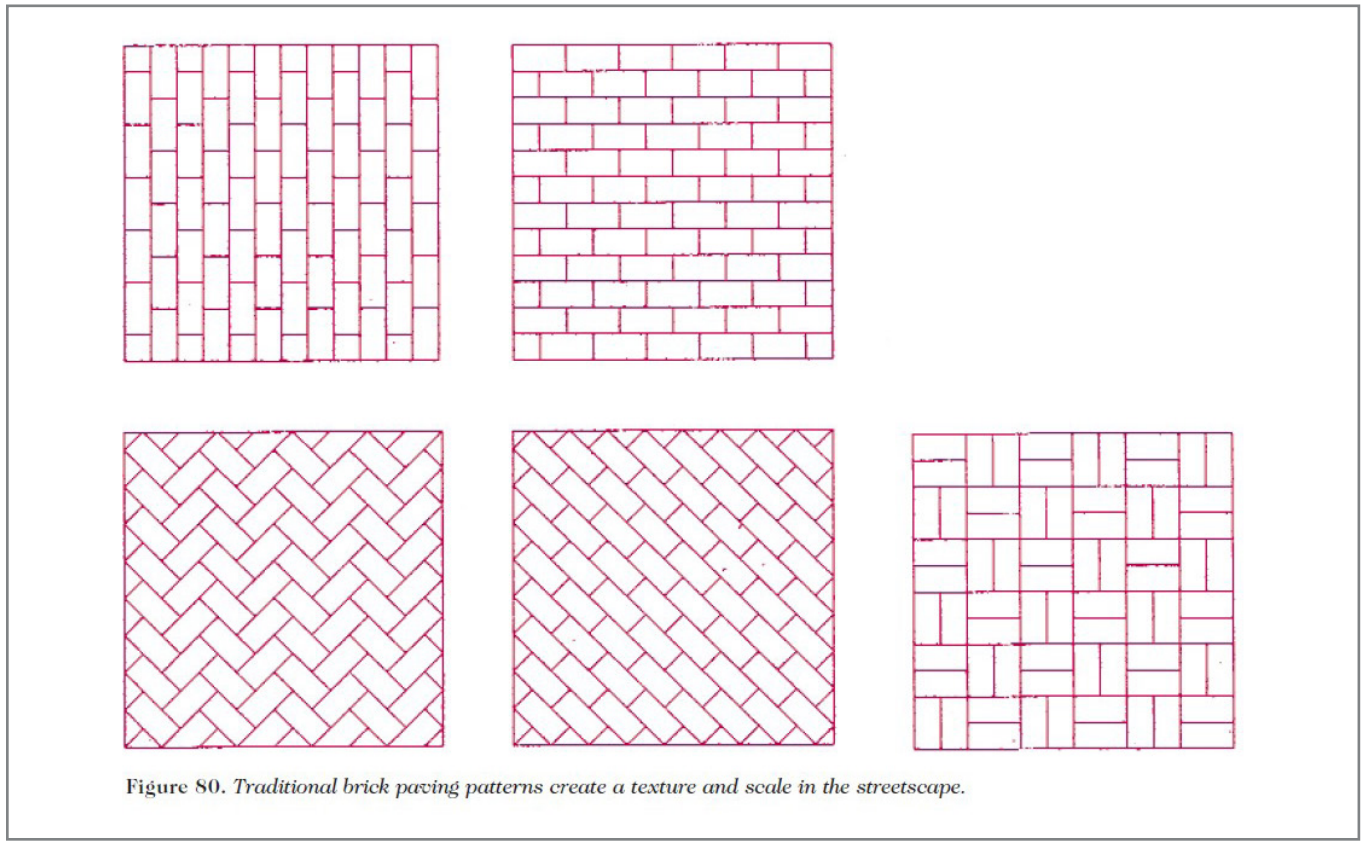


Figure 80. *Traditional brick paving patterns create a texture and scale in the streetscape.*

Historically accurate brick paving patterns as shown in the Design Guidelines for The West Chester Historic District.

Figure 12: Street Furniture Design Guidelines

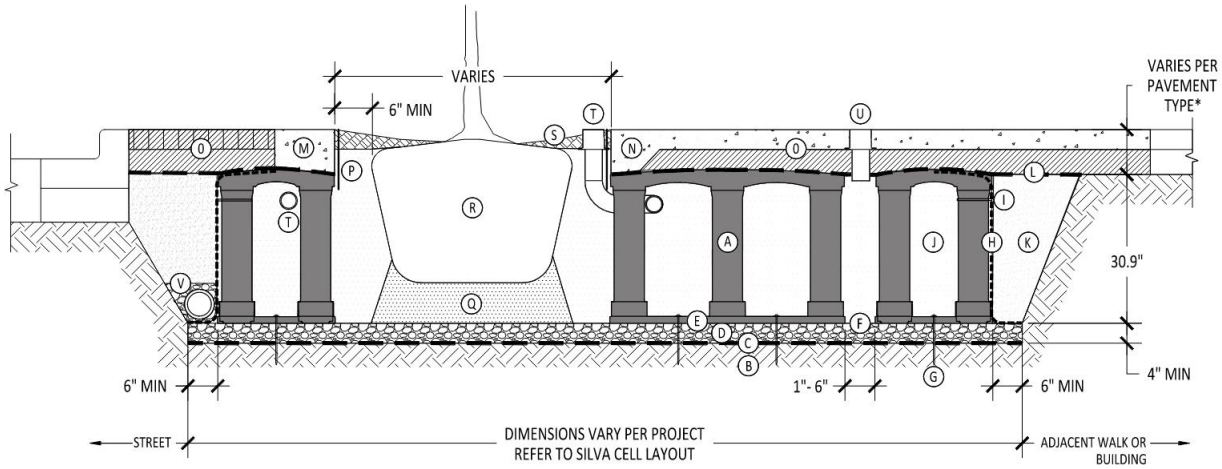
The Borough's Design Guidelines offer guidance on the selection of street furnishings.

Plant material is also an important part of any streetscape's material palette. Large shade trees are a dominant streetscape element in West Chester and will certainly be included along the High Street corridor where the absence of above and below ground utilities allow trees to grow. Contiguous "tree trenches" of specialized, compaction-resistant soils will provide favorable conditions for a long-lived and healthy tree canopy.

West Chester Borough has adopted the Silva Cell System as the standard for planting trees in sidewalk areas. This advanced system provides an underground vault of uncompacted soil to allow tree roots to grow and spread well below the pavement surface. This system reduces the chance of pavement heave while providing a strong, durable pavement surface. The Silva Cell can also be used to capture surface stormwater and slowly release it into the groundwater table before it has a chance to enter the storm sewer system. The volume of available, quality soil is directly attributable to the mature size, health and longevity of a street tree. Each tree planted in the West Chester streetscape should have 1 to 3 cubic feet of soil for every square foot of anticipated mature canopy area. This would equate to approximately 1,500 cubic feet of soil required for each large shade tree with an anticipated 35' canopy. In areas where open planting beds or lawn are in the vicinity, the Silva Cell can be used to provide a bridge of growing media from the tree to the open soil area, therefore dramatically reducing the required volume of soil within the Silva Cell System. In areas where trees are located continuously along a street, the Silva Cells can provide a continuous trench of available soil that can be shared by the adjacent trees. This shared soil trench can also significantly reduce the volume of soil required for a solitary tree. In areas where utility laterals pass through the tree trench and preclude the use of the Silva Cells, CU Structural soil, a structural matrix of stone and soil, can be used to surround the utilities and continue the positive pathway for root systems. In general, about 2 cubic feet of CU Structural soil should be used for every square foot of anticipated canopy and the CU Structural soil depth should be 24"- 30" of soil media. The two aforementioned soil systems can be used together successfully within the same tree's root system.

Hardy, native or adapted hybrid trees should be selected from the Borough's Approved Tree List. Other hardy and native trees may also be considered if they are proven successful in similar streetscape conditions. In locations where overhead wires preclude large shade trees, smaller species can still provide benefits of aesthetics, stormwater retention and shade without the need for canopy pruning. To provide a resilient canopy along High Street, a variety of shade trees should be chosen to avoid a major loss of canopy in the event of disease or infestation. Great care should be taken in the selection to avoid nut or seed pod bearing trees along pedestrian areas to avoid trip and slip hazards. Additionally, placement (and ongoing maintenance) of street trees should be carefully examined/confirmed in close proximity to bus stops to ensure safe passenger access.

Existing waste receptacles, bench and streetlight on High Street.



SILVA CELL SYSTEM 2X

NOT TO SCALE

KEY PLAN

- (A) SILVA CELL SYSTEM (DECK, BASE, AND POSTS)
- (B) SUBGRADE, COMPACTED
- (C) GEOTEXTILE FABRIC, PLACED ABOVE SUBGRADE
- (D) 4" MIN AGGREGATE SUB BASE, COMPACTED TO 95% PROCTOR
- (E) SILVA CELL BASE SLOPE, 10% MAX
- (F) 1" TO 6" SPACING BETWEEN SILVA CELLS AT BASE
- (G) ANCHORING SPIKES, CONTACT DEEPROOT FOR ALTERNATIVE
- (H) GEOGRID, WRAPPED AROUND PERIMETER OF SYSTEM, WITH 6" TOE (OUTWARD FROM BASE) AND 12" EXCESS (OVER TOP OF DECK)
- (I) CABLE TIE, ATTACHING GEOGRID TO SILVA CELL AT BASE OF UPPER LEG FLARE, AS NEEDED
- (J) PLANTING SOIL, PER PROJECT SPECIFICATIONS, PLACED IN LIFTS AND WALK-IN COMPACTED TO 75-85% PROCTOR
- (K) COMPACTED BACKFILL, PER PROJECT SPECIFICATIONS
- (L) GEOTEXTILE FABRIC TO EDGE OF EXCAVATION
- (M) RIBBON CURB AT TREE OPENING (TO BE USED WITH PAVERS OR ASPHALT)
- (N) THICKENED EDGE AT TREE OPENING (TO BE USED WITH CONCRETE)
- (O) PAVEMENT AND AGGREGATE BASE PER PROJECT *

*MINIMUM PAVEMENT PROFILE OPTIONS TO MEET H-20 LOADING

PAVEMENT	+ AGGREGATE BASE COURSE
4" CONCRETE	+ 4" AGGREGATE
3" PAVER	+ 12" AGGREGATE
4" ASPHALT	+ 12" AGGREGATE
2.6" PAVER	+ 5" CONCRETE

- (P) DEEPROOT ROOT BARRIER, 12" OR 18", DEPTH DETERMINED BY THICKNESS OF PAVEMENT SECTION, INSTALL DIRECTLY ADJACENT TO CONCRETE EDGE RESTRAINT
- (Q) PLANTING SOIL BELOW ROOT BALL, COMPACTED WELL TO PREVENT SETTLING
- (R) ROOT BALL
- (S) TREE OPENING TREATMENT, PER PROJECT SPECIFICATIONS
- (T) DEEPROOT WATER AND AIR VENT, ROOTBALL, WHEN REQUIRED
- (U) DEEPROOT WATER AND AIR VENT, WHEN REQUIRED
- (V) UNDERDRAIN SYSTEM, WHEN REQUIRED (LOCATION AND DETAILS BY OTHERS)

NOTES

1. EXCAVATION SHALL BE DONE IN ACCORDANCE WITH ALL APPLICABLE HEALTH AND SAFETY REGULATIONS
2. INSTALLATION TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS
3. PROVIDE SUPPLEMENTAL IRRIGATION
4. DO NOT SCALE DRAWINGS

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SILVA CELL SYSTEM 2X

NOT TO SCALE
FEET

The Silva cell system provides the necessary uncompacted soil volume for healthy street trees while also providing a durable, safe and stable sidewalk surface.

Lighting Standards / Design

In order to continue the design precedent established in the Borough's historic district, the ornate cast iron poles and acorn-style luminaires of the historic business district will be included in the High Street corridor streetscape. Luminaires can retain the historic and aesthetic style of those luminaires along Market Street while also incorporating the latest technology.

In high vehicle and pedestrian conflict environments such as the High Street corridor, lighting design standards are rigorous in order to maximize safety. Deviations from these standards may result in dramatic losses in safety. According to IESNA RP-8-18A, "not meeting uniformity or veiling luminance ratio recommendations may produce results that are more detrimental to minimum visibility than not providing any lighting".

When designing the enhanced streetscape, many factors affect lighting conditions including obvious design criteria such as spacing, mounting height and intensity of light sources, but other factors such as glare, growing trees, light pollution in residential areas, the intensity of pedestrian use and even lighting color (kelvin temperature) also factor into the design.

Existing ornamental lighting on the 100-block of South High Street (between Market Street and Miner Street).

According to IESNA RP-8-18, the High Street corridor is classified as a collector Street with High Pedestrian Activity. The minimum design criteria for this street classification are as follows:

- Average Luminance (Lavg): 0.8 cd/m2
- Average Uniformity Ratio (Lavg/ Lmin): 3.0
- Maximum Uniformity Ratio (Lmax/Lmin): 5.0
- Maximum Veiling Luminance Ratio (Lv,max/ Lavg): 0.4

In basic terms, the High Street Corridor should be relatively bright, and evenly lit.

As recommended in other report sections, the High Street corridor streetscape will use design precedents set within the very successful Market Street corridor. Light poles and fixtures will be similar to the Market Street corridor but will take advantage of the latest LED technology and lighting controls to meet the design criteria identified above.

As lighting technology continues to advance rapidly, the Borough may opt to take advantage of the various technological benefits that can be incorporated into a smart streetlight. A few of the potential technological benefits include, but are not limited to: remotely operated dimming and light control, error/ malfunction notifications, cameras, noise detection, Wi-Fi, 5G cellular networks, and cellphone-based crowd remote density monitoring. In order to take full advantage of potential current and future smart lighting technology, all new light fixtures should be installed with 7-pin Nema style twist lock photocells receptacles. Some minor modifications that may be necessary to take full advantage of the available technologies include different diffuser/ lens material of the acorn globes, and the incorporation of a nema-socket photocell on the top of the luminaire where a simple finial is now used in the Market Street lights.

[A] *IES Roadway Lighting Committee, editor. "Chapter 11 Street Lighting." Recommended Practice for Design and Maintenance of Roadway and Parking Facility Lighting, The Illuminating Engineering Society, 2018, pp. 11–1-11–12.*

Transit Amenities

Chester County's Public Transportation Plan and Multimodal Handbook recommends the following transit amenities based on daily ridership. These recommendations were considered in the development of the Corridor Improvement Plan, especially at the High Street/Linden Street bus stop. Further design guidance is available via SEPTA Bus Stop Design Guidelines, Second Edition (December 2019).

Recently installed bus shelters along Marshall Street serving Chester County Hospital.

Figure 13 - Recommended Amenities by Ridership

Stop Type	Amenities								
	Bus Stop Sign	ADA Loading Pad	Paved Walkway Connections	Bus Shelter	System Map	Bench/ Trash Can	Lighting	Bike Racks	Real Time Info
Basic Stop (daily boards of 5 or less)	X	X	X						
Collector Stop (daily boards from 6-20)	X	X	X	X	X	X	X		
Hub Stop (daily boards from 21-50)	X	X	X	X*	X	X**	X	X	X

* = Minimum of 1, or a larger sized shelter.
** = Minimum of 2 each.

Source: Chester County Multimodal Handbook


NO
TURNS
Linden St
5828
Keeping you in your
"comfort zone."
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PLUMBING • HEATING • COOLING
McLoughlinPHC.com • 610.649.8080
SAME DAY
SERVICE

CONCEPTUAL IMPROVEMENT PLAN

This plan graphically depicts the long-term vision for the High Street Corridor. While implementable, it may take a number of years to see the plan to fruition. This narrative will describe the proposed conditions on each panel.

Panel 1: Chestnut Street to Market Street

While the current streetscape is well-loved and developed, the following improvements may be made in this area to implement the vision for the corridor.

- Signal modifications will be explored to increase safety and efficiency for all modes.
- Addition of high-visibility crosswalks throughout the corridor will increase safety for pedestrians throughout the corridor
- Lighting conditions will be evaluated, and a consistent lighting design will be applied throughout the corridor that meets IESNA standards and conforms to the Borough Design Guidelines.
- Addition of seasonal planters in front of the Historic Courthouse, will offer seasonal interest and color to the streetscape.
- Replacement of existing concrete sidewalk near the Market Street intersection will add to the aesthetic of the Borough's Historic District.

Figure 14a: Corridor Concept Plan

Panel 2: Market Street to Barnard Street

Significant physical improvements to the streetscape are recommended to begin at the intersection of Miner Street and High Street where the prior streetscape improvements to the 100 block of South High Street (and Market Street) end. The following list of improvements will provide safe and comfortable travel and create a sense of place along High Street.

- Improvements to deter pedestrian and vehicle conflicts near the Bicentennial Garage may include additional signage and design of physical elements that further deter left-turn vehicular movements upon exit.
- Introduction of curb extensions to shorten crosswalk length, and integration of green infrastructure into the streetscape.
- Continuation of brick sidewalk paving to match the established streetscape to the north.
- Additional street trees will provide urban greening and consistency along the corridor.
- Redesigned entrance at 7-Eleven will control access to reduce modal conflicts, and may reduce crashes in the vicinity, while adding green infrastructure.
- Concrete aprons for vehicular driveways will provide contrasting pavement color and texture to alert pedestrians of vehicular access throughout the corridor.

Figure 14b: Corridor Concept Plan

Panel 3: Union Street to Lacey Street

Development of this portion of the corridor is critical to realize the Community's vision for the corridor, connection the Borough's Historic and Commercial core to the Campus of West Chester University. While the changes to the streetscape are significant, this portion of the corridor creates a noticeable transition between the urban center and academic landscape.

- Curb Extensions at Union Street intersection allows for enhanced SEPTA stops both northbound and southbound.
- The realignment of Dean and Magnolia streets creates an opportunity to improve sight distance, create a safer intersection for all users and creates a potential valuable public space that will benefit the community.
- The Block of High Street between Union and Magnolia Streets will be widened to safely accommodate parallel parking on both sides of the roadway.
- The landscape median will serve as a gateway that signals to travelers of all modes the transition from the urban core to the University section of High Street. The addition of street trees and continuation of brick paving will enhance this connection.
- Additionally, an enlarged plaza space at the Price St. intersection (southbound) will allow for transit amenities such as benches, planters and litter receptacles.

Figure 14c: Corridor Concept Plan

Panel 4: Lacey Street to University Avenue

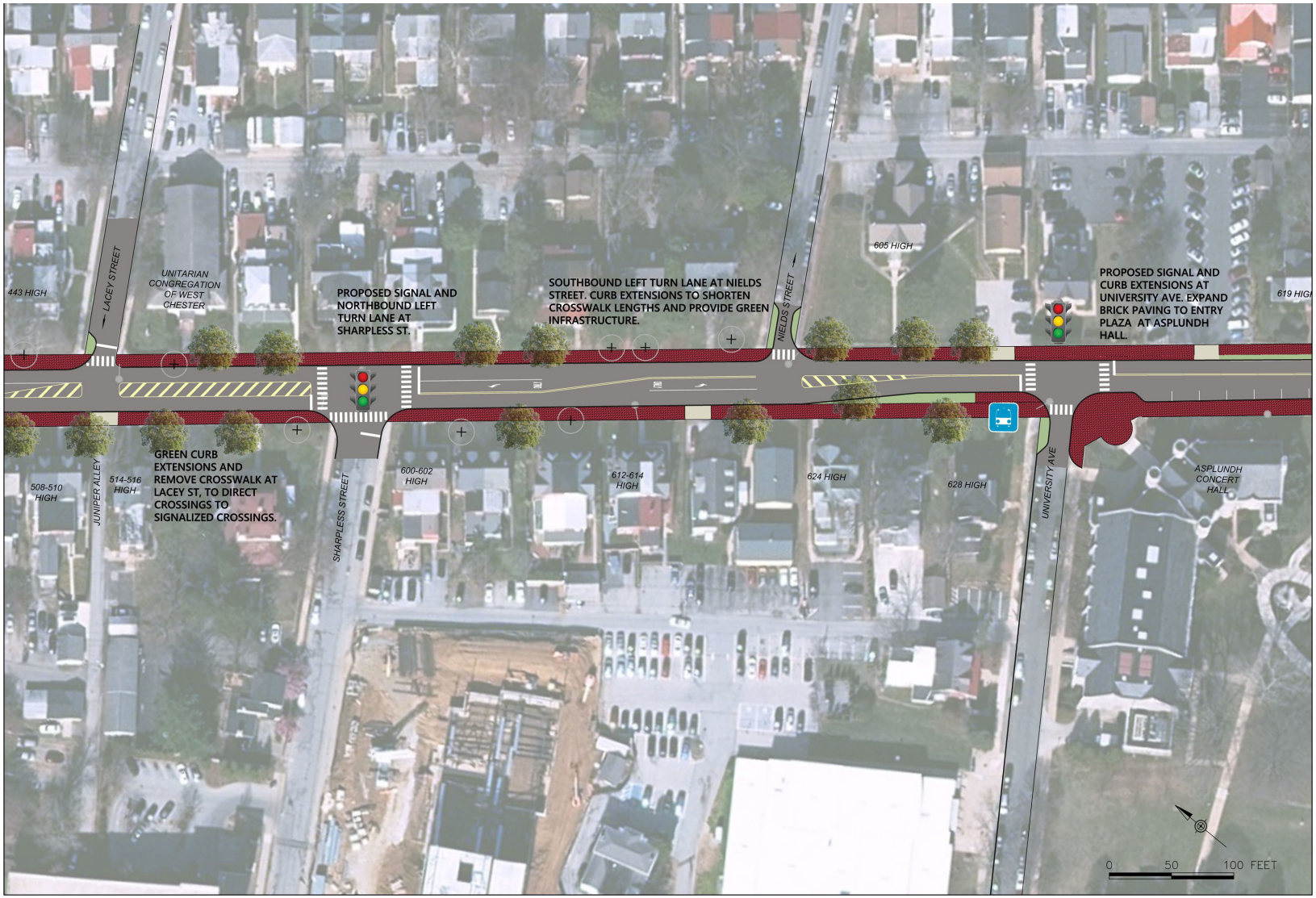
The Consultant Team modeled the potential impact of the two newly proposed signals according to PennDOT standards and concluded that High Street would continue to operate at acceptable level of service in both existing and future conditions. Refer to the Signalization Analysis in the Appendix for more detail.

This section of the corridor focuses on enhancing safety for all modes along the corridor.

- Curb extensions will allow for shortened crossing times for pedestrians and additional green infrastructure to soften the streetscape.
- The proposed signal improvements and curb extensions would potentially allow SEPTA to relocate and/or consolidate bus stops on southbound High Street between Nields Street and Linden Street.
- The continuation of brick sidewalk and shade trees on the streetscape enhances the University's connection to the Borough's core. Coordination and cooperation between the Borough and WCU is critical for the success of the corridor vision implementation.
- Pedestrians approaching High Street at Lacey and Nields Streets would be encouraged to cross High Street at adjacent signalized intersections at Price Street, Sharpless Street, and University Avenue. These intersections should be monitored closely to determine if further engineering, education, or enforcement strategies are appropriate.

There was not full consensus from the Steering Committee regarding the crosswalk treatments of the Lacey Street/High Street and Nields Street/High Street intersections. As this section of High Street advances into design, further investigation and coordination between the Borough and PennDOT is recommended to assure that all parties are supportive of the ultimate treatment for these two unsignalized intersections.

Figure 14d: Corridor Concept Plan

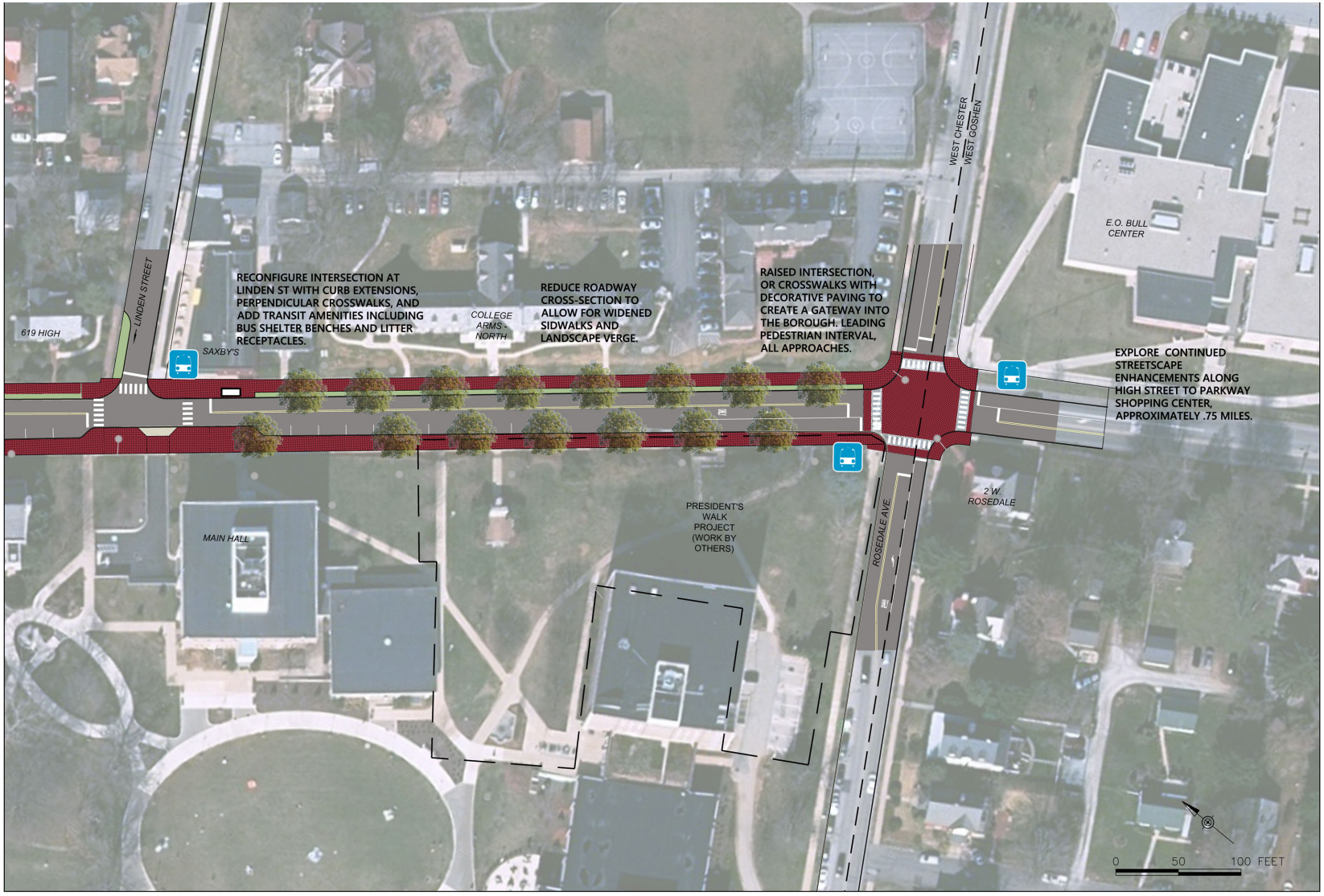


Panel 5: Linden Street to Rosedale Avenue

The final length of the corridor is characterized to be a re-envisioned streetscape that creates an environment that is identifiable as the University but has the distinct feel of West Chester Borough.

- The brick streetscape is continued with widened brick sidewalks and maintained landscape verge, and additional shade trees.
- The Linden Street intersection will be reconfigured to create a simpler, safer intersection that may reduce illicit crossing, while the expanded paving in in front of the coffee shop allows for the introduction of a robust Transit stop with bus shelter and transit related amenities.
- Finally, the Rosedale Avenue intersection will feature signal modifications for a leading pedestrian interval, and either a raised intersection or crosswalks with decorative paving to welcome travelers to both the Borough and WCU.

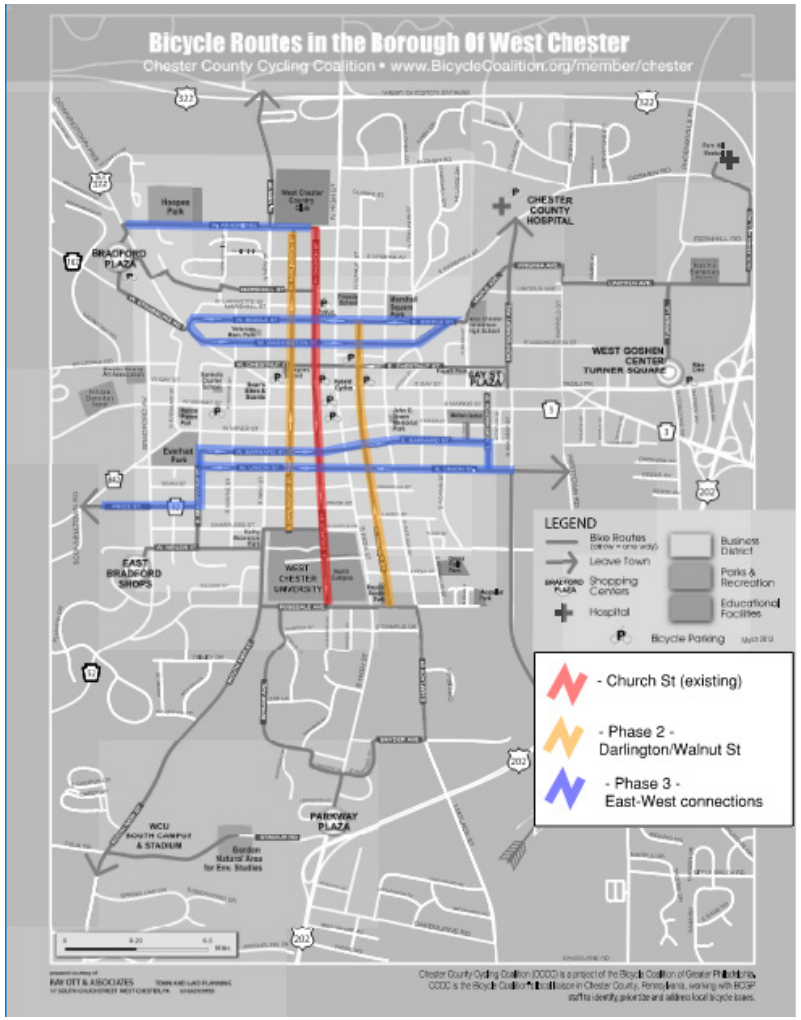
Figure 14e: Corridor Concept Plan



NORTH-SOUTH BICYCLING PLAN FOR HIGH STREET

Due to a combination of High Street's limited cartway width, traffic volume, and demand for on-street parking, dedicated bike facilities such as a bike lane were considered infeasible along South High Street. Rather, using the Borough's Bicycle Routing Map (as shown in Figure 15), bicyclists would be encouraged to traverse north-south on parallel, less-stressful roadways. Specifically, southbound bicyclists would be directed to Church Street, which already is striped with sharrow (share-the-road) legends. Northbound bicyclists would be directed to either Darlington Street or Walnut Street as both of these roadways have been approved by Borough Council for the installation of sharrows as well.

Figure 15: Bicycle Routes in West Chester



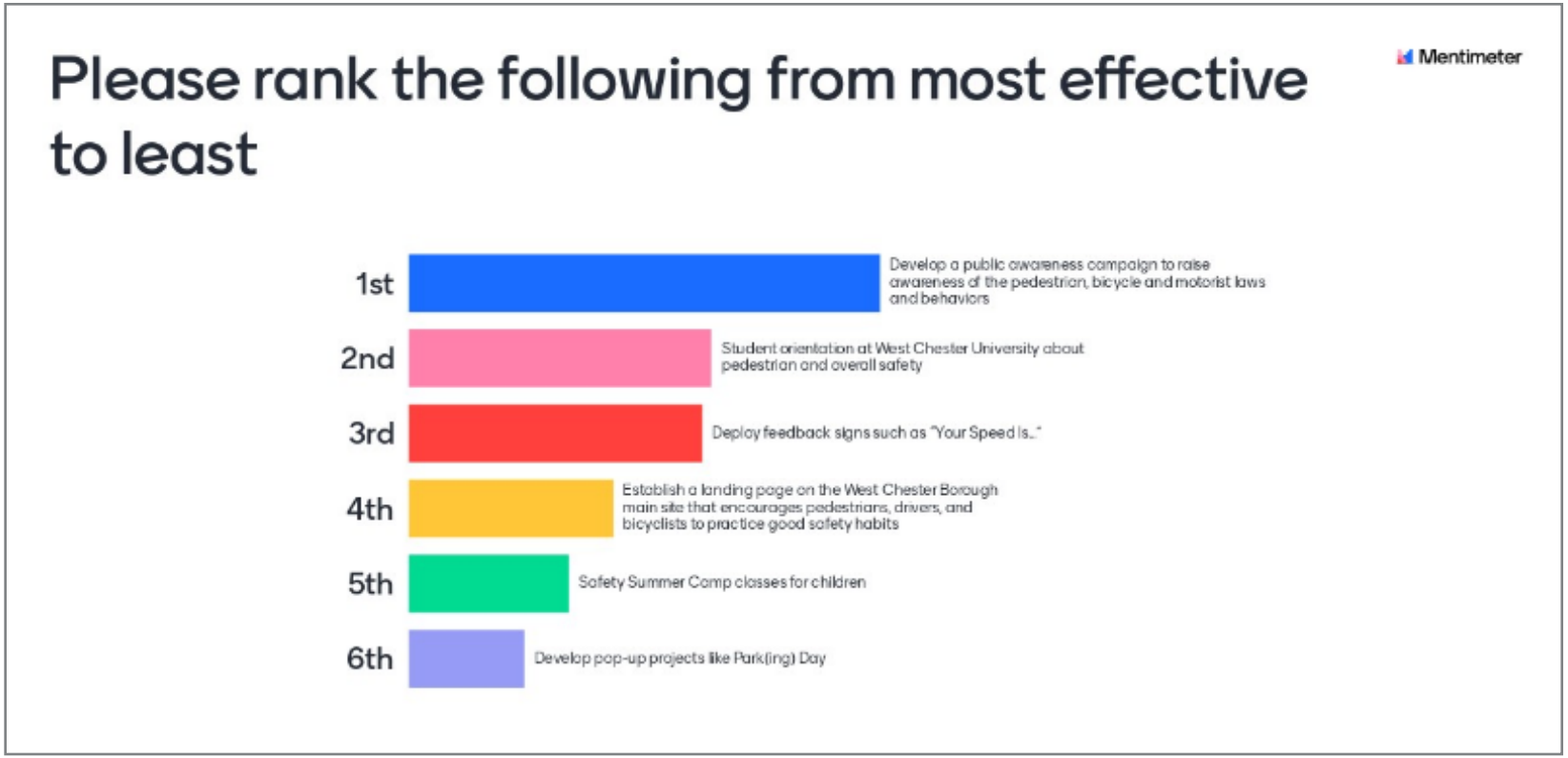
A BALANCED IMPLEMENTATION STRATEGY – EDUCATION / ENCOURAGEMENT / ENFORCEMENT

The Consultant Team scanned and presented best practices for education, encouragement, and enforcement strategies. These lists were presented to the Steering Committee and ranked by the Committee using Mentimeter, an online survey platform. These results are presented below.

Education Tactics

The steering committee was strongly in favor of developing a public awareness campaign to raise awareness of pedestrian, bicycle and motorist laws and behavior. Secondly, the committee showed value and interest in a comprehensive student orientation program regarding safety for West Chester University students that covers save behaviors for motorists, bicycles, pedestrians and overall personal safety. Finally, for educating motorists, the use of speed limit feedback signs was ranked favorably.

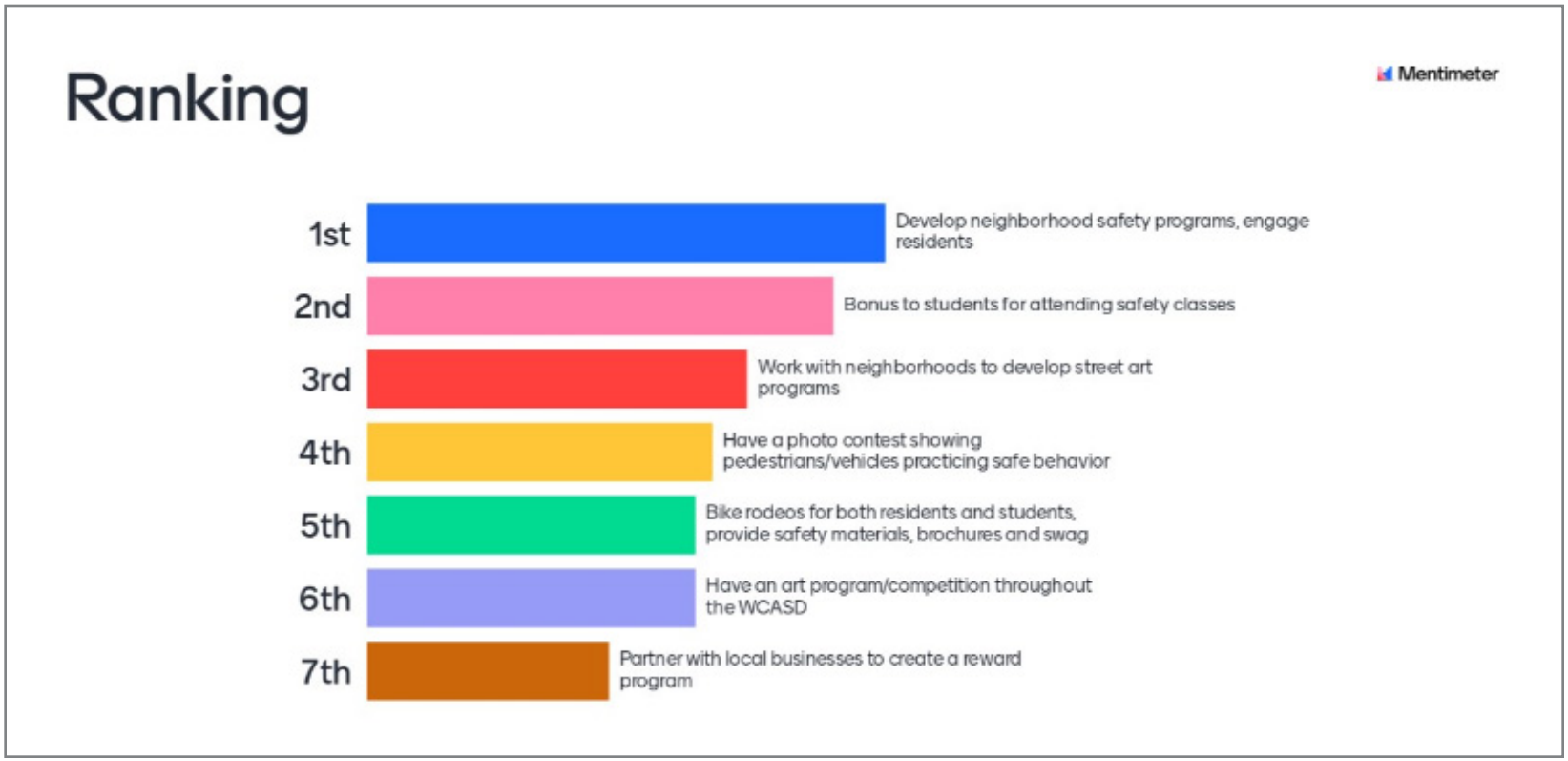
Figure 16: Ranking of Education Strategies



Encouragement Tactics

As summarized in Figure 17, a list of ideas were developed to engage the community and encourage safer behavior along the High Street Corridor. Developing neighborhood safety programs that engage residents to help with safety in their neighborhoods such as neighborhood slow zones was the top selection from the steering committee followed closely by providing bonuses to West Chester University students to attend safety courses.

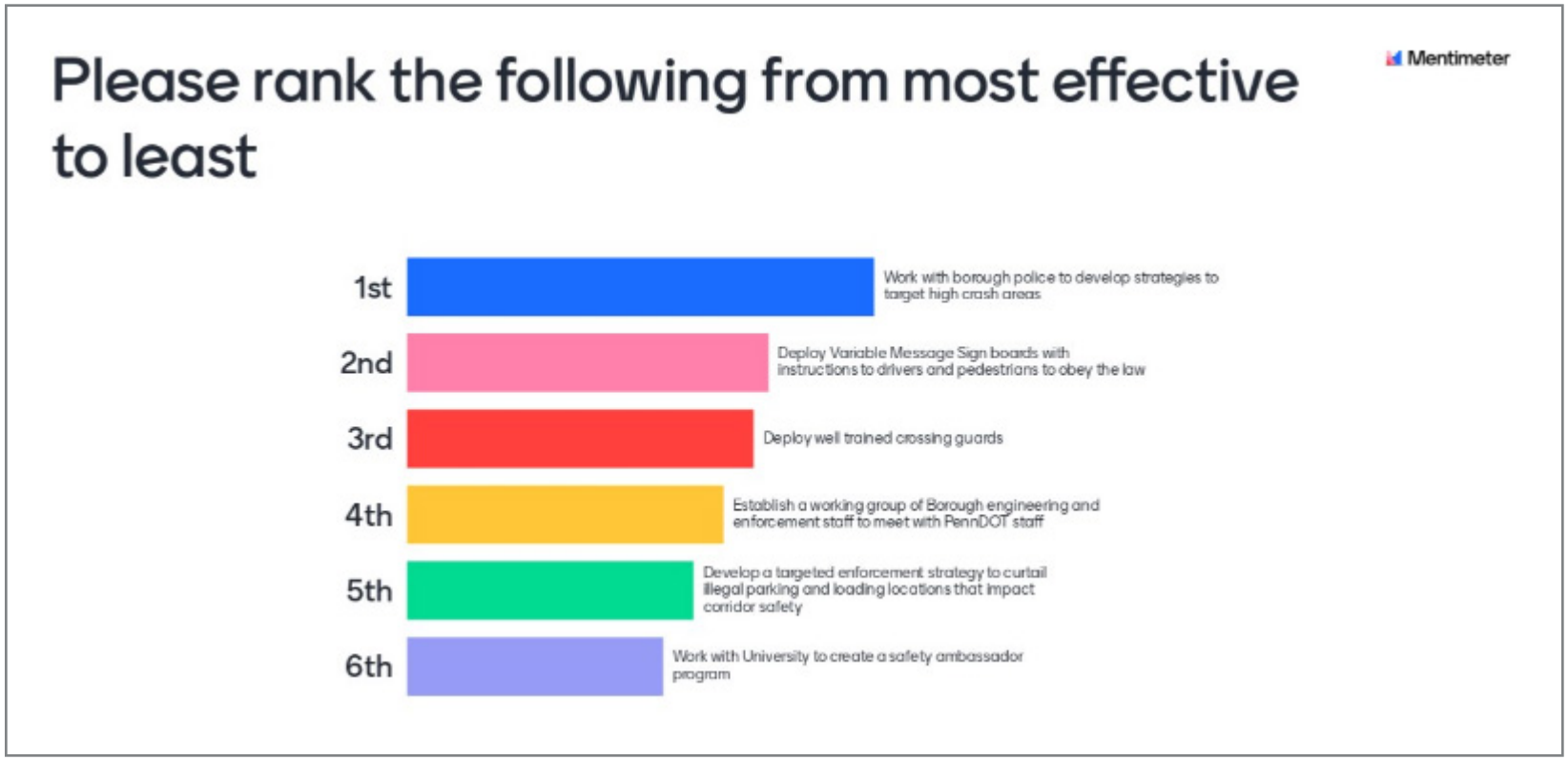
Figure 17: Ranking of Encouragement Strategies



Enforcement Tactics

Among enforcement tactics (as ranked in Figure 18), the most popular of which involves working with Borough police to develop strategies to target high crash areas to reduce overall crashes which is a priority of the Police throughout all corridors of the Borough. While ranked third, there was significant concern about the use of crossing guards along High Street. For these reasons, this tactic was not carried forward to the list of recommended strategies.

Figure 18: Ranking of Enforcement Strategies



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Assembling the Puzzle Pieces

Implementation Plan

Assembling the Puzzle Pieces

ASSEMBLING THE PUZZLE PIECES – IMPLEMENTATION PLAN

This plan is intended to serve as a resource to West Chester Borough, West Chester University, PennDOT, SEPTA, and all corridor stakeholders to guide the improvement and transformation of South High Street. The Implementation Plan outlines a course for advancing the corridor vision and improvement plan.

PRIORITY EDUCATION, ENCOURAGEMENT, ENFORCEMENT TACTICS

South High Street Working Group

» Develop (continue) a South High Street working group to continue to monitor safety data, education/education/enforcement tactics

The development of this Corridor Plan and the assembly of the Steering Committee has brought together all key stakeholders of South High Street, including Borough staff, Borough Police Department, West Chester University, PennDOT, SEPTA, and Chester County. This group should continue to convene on a regular/periodic basis to review relevant data, monitor the implementation the Plan's recommendations, and outline next steps for the South High Street Corridor.

Education

» **Tactic 1** - Develop a public education campaign to raise awareness of pedestrian, bicycle and motorist laws and behaviors

Raising public awareness about roadway safety is critical in reducing roadway conflicts. Samples include developing a creative signage campaign such as "Drive Attentively and Respectfully.", "Slow Down. Careers in the Making.", "Make Eye Connect Before Crossing!", "Cross at Crosswalks Only" and "Cross Here" signs.

» **Tactic 2** - Develop a Student Orientation program for first-year students/transfers at West Chester University

A possible education/encouragement campaign brand for High Street

A safety orientation program about bicycle, pedestrian, vehicular and overall safety for incoming first year students reviewing laws and rules of the road would be greatly beneficial to new students getting acclimated to their new surroundings. Examples of items to review include making eye contact with drivers before crossing, wearing bright colored clothes at night, don't text and walk, don't text and drive, importance of observing the speed limit and other potential lifesaving behaviors.

» **Tactic 3** - Deploy feedback signs along the corridor at critical locations

Deploying reminders to motor vehicles with dynamic messages such as "Your Speed is..." have been shown to have a positive impact on driver behavior.

Encouragement

» **Tactic 1** - Develop neighborhood safety programs - Programs that engage the residents of the community to help with safety within their neighborhoods such as neighborhood slow zones are much more effective than programs without engagement that may seem forced upon the community.

» **Tactic 2** - Offer an incentive program to WCU students for attending a safety class

Examples of such bonuses include free coffee, movie passes, meal credits on Ram Card and other affordable incentives that encourage students to attend the safety course.

» **Tactic 3** - Work with neighborhoods to develop street art programs

This is another example of engaging the community and also gives them a sense of ownership of the types of art that will be deployed within their neighborhood.

Enforcement

» **Tactic 1** - Work with borough police to develop strategies for targeting high crash areas to reduce overall crashes

Identifying crash hot spots and creating enforcement strategies on how to mitigate these areas will have a profound effect on improving corridor safety.

» **Tactic 2** - Deploy Variable Message Sign boards at critical locations along the corridor with instructions to drivers and pedestrians to obey the laws

Providing reminders to drivers and pedestrians to obey traffic and safety laws has a positive impact on behaviors.

OPINION OF PROBABLE COST

The Consultant Team developed an opinion of probable cost for the Corridor Concept Plan.

Figure 19: Opinion of Probable Constructed Cost

Items / Section	Chestnut Street to Market Street	Market Street to Union Street	Union Street to Lacey Street	Lacey Street to University Avenue	University Avenue to Rosedale Avenue
Materials & Labor	$89,600	$936,100	$2,307,200	$1,339,900	$1,862,300
Drainage items	$13,400	$140,400	$346,100	$201,000	$279,300
Striping and Signage (3%)	$2,700	$28,100	$69,200	$40,200	$55,900
Misc. Con. Items	$5,000	$5,000	$5,000	$5,000	$5,000
Mobilization (4%)	$4,400	$44,400	$109,100	$63,400	$88,100
Maintenance and Protection of Traffic (6%)	$6,600	$66,600	$163,700	$95,200	$132,200
Construction Survey/Stakeout (3%)	$3,300	$33,300	$81,800	$47,600	$66,100
Subtotal	$125,000	$1,253,900	$3,082,100	$1,792,300	$2,488,900
Escalation (3 years at 3%)	$11,600	$116,300	$285,800	$166,200	$230,800
Contingency (25%)	$34,200	$342,600	$842,000	$489,600	$679,900
Construction Inspection (12%)	$20,500	$205,500	$505,200	$293,800	$408,000
Total Section Cost	$191,300	$1,918,300	$4,715,100	$2,741,900	$3,807,600
				Total Project Cost:	**$13,374,200**

**Does not include:*

Surveying/Engineering/Permitting/Legal Fees

Acquisition Costs for Right-of-Way/Easements/Releases

Utility pole relocation, underground utility relocation/exploration

Construction Management

or any other items not specifically listed above.

IMPLEMENTING THE CORRIDOR PLAN

Through Programmed Projects

CHESTER COUNTY COMMUNITY REVITALIZATION GRANT

As noted in the Plan's introduction, the Borough has secured $400,000 of funding to conduct improvements along High Street through Chester County's Community Revitalization Program. Commencement of design for this project can be on hold awaiting the conclusion of this Corridor Plan. Through the discussion of the Steering Committee, PennDOT shared that their safety funding (see below) cannot fund brick sidewalks, decorative lighting, or green infrastructure elements. Therefore, these decorative features will be advanced and funded by the Chester County CRP grant.

PENNDOT HIGHWAY SAFETY PROJECT

High Street has been programmed for $1.8 million in regional safety funds through the Delaware Valley Regional Planning Commission's 2021-24 Transportation Improvement Plan. Primarily this funding will install the two new traffic signals proposed at Sharpless Street and University Avenue as well as overhead intersection lighting and pedestrian bump-outs/curb-extensions.

Regular communication will be required between West Chester Borough and PennDOT to keep the design of these two concurrent projects aligned and coordinated. Both parties should establish an ongoing communication strategy (i.e. monthly conference calls) to review design milestones and coordination issues.

Additional Grant Opportunities

While the Borough has already secured grant funding for High Street, additional grant funding may be required to fully advance the Corridor Improvement Plan -- whether immediately or upon the completion of the aforementioned projects. Grants well-suited for this Plan include:

TRANSPORTATION ALTERNATIVES SET-ASIDE – PENNDOT/DVRPC

- Primary Purpose: multimodal improvements
- Amount: $250,000 - $1,000,000; pre-construction match
- Application Window: Spring 2021 (anticipated)
- More Information: http://tinyurl.com/TPD-TASetAside

AUTOMATED RED LIGHT ENFORCEMENT (ARLE) - PENNDOT

- Primary Purpose: signal upgrades
- Amount: $20,000 - $400,000
- Application Window: June 1 - July 1, 2021 (annually)
- More Information: http://tinyurl.com/TPD-ARLE

MULTIMODAL TRANSPORTATION FUND - CFA/DCED

- Primary Purpose: roadway, bridge, multimodal, transit, freight improvements
- Amount: $100,000 - $3,000,000; 30% match
- Application Deadline: July 1, 2021 (anticipated)
- More Information: http://tinyurl.com/TPD-MTF-CFA

MULTIMODAL TRANSPORTATION FUND - PENNDOT

- Primary Purpose: roadway, bridge, multimodal, transit, freight improvements
- Amount: $100,000 - $3,000,000; 30% match
- Anticipated Deadline: November 2021 (anticipated)
- More Information: http://tinyurl.com/TPD-MTF-PennDOT

Land development/redevelopment

Beyond grants and programmed projects, the Borough should seek to implement the Corridor Improvement Plan through proposed development/redevelopment along the South High Street Corridor. The Consultant Team and Steering Committee should continue to work with the Borough Planning Commission to ensure the Corridor Plan is acknowledged in the Borough's Comprehensive Plan, Zoning Ordinance, and Subdivision Land Development Ordinance.

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Appendices

Additional Technical Details

TURNING MOVEMENT COUNTS

Vehicular and Pedestrian Traffic Counts - Weekday AM Peak

33- Vehicular Counts
14- Pedestrian Counts

Vehicular and Pedestrian Traffic Counts - Weekday PM Peak

TURNING MOVEMENT COUNTS

Vehicular and Pedestrian Traffic Counts - Weekday AM Peak

33- Vehicular Counts
14- Pedestrian Counts

Vehicular and Pedestrian Traffic Counts - Weekday PM Peak

TURNING MOVEMENT COUNTS

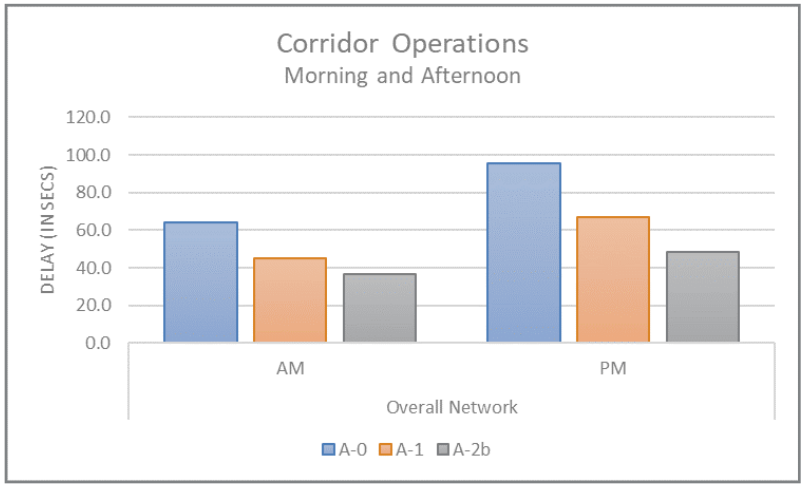
Vehicular and Pedestrian Traffic Counts - Weekday AM Peak

33- Vehicular Counts
14- Pedestrian Counts

Vehicular and Pedestrian Traffic Counts - Weekday PM Peak

SIGNALIZATION ANALYSIS

The traffic operations through the key study area corridor were analyzed to evaluate the potential impact of the two newly proposed signals at Sharpless Street and University Avenue. The analyses were conducted in accordance with the Highway Capacity Manual methodologies and standard PennDOT protocol using Synchro and SimTraffic software. Traffic simulation analyses were used to model exiting traffic conditions to more accurately reflect current traffic operations and the impacts that high pedestrian activity at non-signalized intersections have on vehicular traffic flow. The key study area corridor was evaluated under current conditions and future conditions with optimal corridor signal timing and the introduction of the two proposed traffic signals.



The results of the current traffic operations analysis reveal that there are instances of poor traffic signal progression along the High Street corridor and several locations where a high amount of uncontrolled pedestrian crossings contribute to corridor vehicular congestion. While a more optimal signal timing program would provide better corridor progression, there are still notable instances of vehicle queuing between intersections. The analysis results indicate that the two newly proposed signals fit within the corridor traffic operations and do not translate into additional congestion issues. The two newly proposed signals reduce intersection congestion and between intersection queuing by providing controlled pedestrian crossing while maintaining pedestrian connectivity.

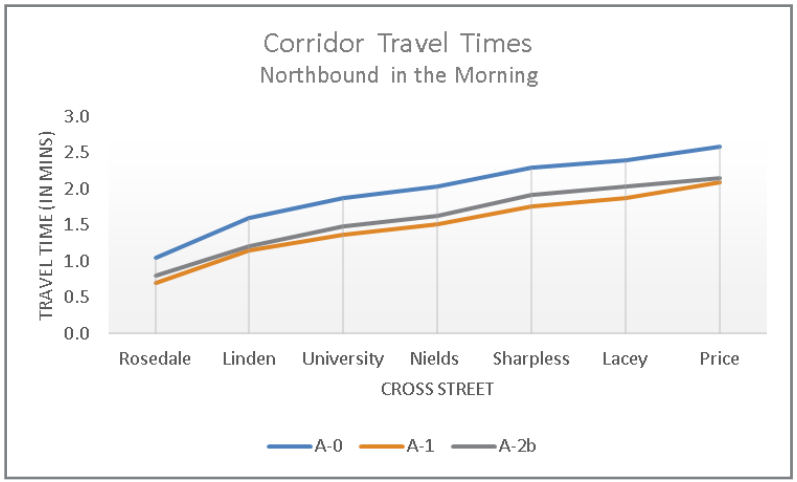
High Street Corridor - Queue Interaction					
Segment	Direction	Storage	Block Time in %		
			A-0	A-1	A-2b
Weekday AM Peak					
Price Street - Sharpless Street	NB	[325']	--	--	--
	SB		1%	1%	--
Sharpless Street - University Avenue	NB	[475']	1%	1%	--
	SB		7%	6%	--
University Avenue - Linden Street	NB	[175']	6%	4%	3%
	SB		5%	1%	--
Weekday PM Peak					
Price Street - Sharpless Street	NB	[325']	--	--	--
	SB		--	--	--
Sharpless Street - University Avenue	NB	[475']	1%	--	--
	SB		1%	2%	--
University Avenue - Linden Street	NB	[175']	--	5%	--
	SB		1%	2%	--

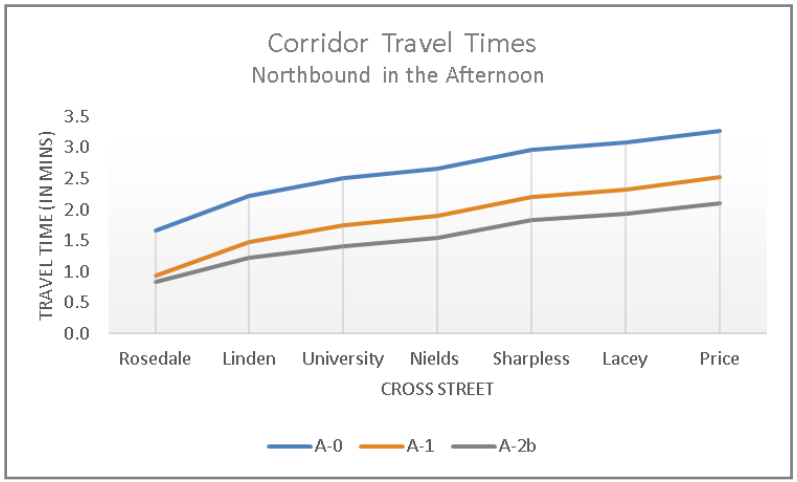
A-0: No-Build

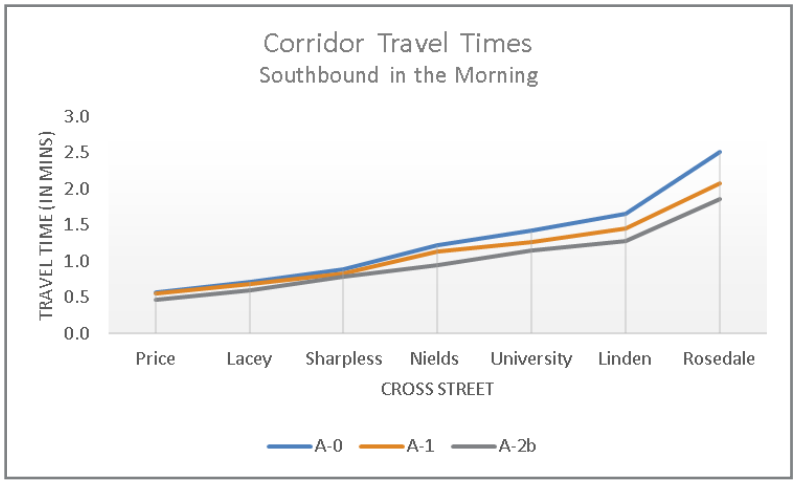
A-1: Optimize Existing Traffic Signals

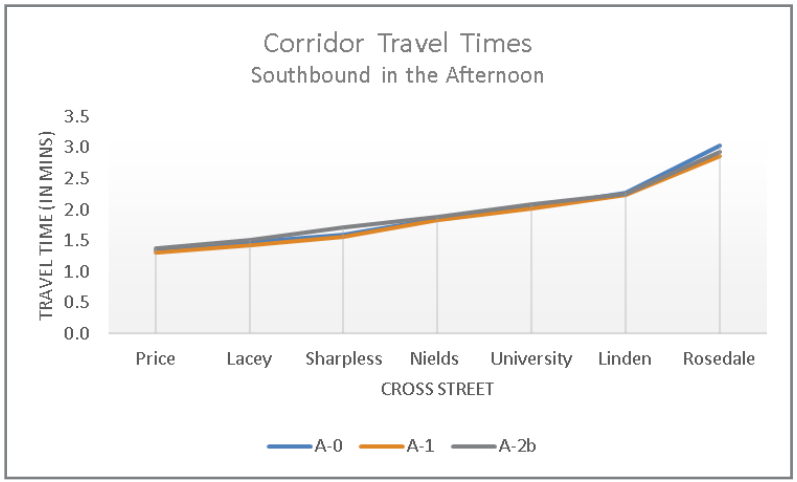
A-2b: Add Two New Traffic Signals (Sharpless/University) with Geometric Changes

Block time shows for how long of the simulated hour the queue will block upstream intersections.


Corridor Travel Times
Northbound in the Morning
TRAVEL TIME (IN MINS)
3.0
2.5
2.0
1.5
1.0
0.5
0.0
Rosedale
Linden
University
Nields
Sharpless
Lacey
Price
CROSS STREET
A-0
A-1
A-2b


Corridor Travel Times
Northbound in the Afternoon
TRAVEL TIME (IN MINS)
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
Rosedale
Linden
University
Nields
Sharpless
Lacey
Price
CROSS STREET
A-0
A-1
A-2b


Corridor Travel Times
Southbound in the Morning
TRAVEL TIME (IN MINS)
3.0
2.5
2.0
1.5
1.0
0.5
0.0
Price
Lacey
Sharpless
Nields
University
Linden
Rosedale
CROSS STREET
A-0
A-1
A-2b


Corridor Travel Times
Southbound in the Afternoon
TRAVEL TIME (IN MINS)
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
Price
Lacey
Sharpless
Nields
University
Linden
Rosedale
CROSS STREET
A-0
A-1
A-2b

OPINION OF PROBABLE COST - BY SECTION

Cost Summary by Section

AREA: Chestnut Street to Market Street

	Description	QTY		UNIT	UNIT COST	EXTENDED COST	COMMENTS
Site Preparation/Demolition							
Site Prepartation/Demolition	Demolition	63.0	CY	$	113.00	$ 7,100	Class 1B Excavation, includes saw cut and pavement removal, assume 12" de
Concrete						$ -	
	Granite Curb	115.0	LF	$	243.00	$ 27,900	
Masonry						$ -	
	Dry Laid Clay Pavers	1500.0	SF	$	22.00	$ 33,000	
Pavement Markings						$ -	
	High Visibity Continental Crosswalk					$ -	
	2' Wide White Therm	680.0	LF	$	20.00	$ 13,600	Chestnut St., Prescott Alley, Market St.
	Flexible Delineator	6.0	EA	$	73.00	$ 400	
	DWS	32.0	SF	$	80.00	$ 2,600	0695 Cast Iron DWS
Site Furnishings						$ -	
	Powdercoated Steel Planters	4.0	EA	$	1,200.00	$ 4,800	In front of Historic Courthouse
	Decorative Wrought Iron Fence	5.0	LF	$	40.00	$ 200	Close Gap in Fence at Barnaby's
						$ 89,600	

AREA: Market Street to Union Street

	DESCRIPTION	QTY		UNIT	UNIT COST	EXTENDED COST	COMMENTS
Site Prepartation/Demolition							
	Demolition	611.9	CY	$	113.00	$ 69,100	Class 1B Excavation, includes saw cut and pavement removal
Erosion and Sedimentation Controls						$ -	
	Inlet Protection	12.0	EA	$	200.00	$ 2,400	cost from ECMS
Concrete						$ -	
	Granite Curb	1597.0	LF	$	243.00	$ 388,100	
	Cement Concrete Driveway Apron	36.6	SY	$	113.00	$ 4,100	
Masonry						$ -	
	Dry Laid Clay Pavers	15932.0	SF	$	22.00	$ 350,500	
Asphalt Paving						$ -	
	Paving restoration along curb	354.9	SY	$	90.00	$ 31,900	Full depth restoration of 24" pavemnt in front of curbing
	Joint sealer	3194.0	LF	$	2.00	$ 6,400	
Pavement Markings						$ -	
	High Visibity Continental Crosswalk					$ -	
	2' Wide White Therm	501.0	LF	$	20.00	$ 10,000	
	DWS	192.0	SF	$	80.00	$ 15,400	0695 Cast Iron DWS
Landscape						$ -	
	Topsoil	113.5	CY	$	95.00	$ 10,800	For GSI/Landscape Bumpout Assumes 24" soil depth ECMS 0802
	Grass Seeding	1532.0	SF	$	0.25	$ 400	
	Street Trees					$ -	
	3" Caliper Shade Tree	2.0	EA	$	600.00	$ 1,200	
	Tree Grate and frame	1.0	EA	$	2,400.00	$ 2,400	
Site Furnishings						$ -	
	Powdercoated Steel Planters	2.0	EA	$	1,200.00	$ 2,400	At Union St. Septa Stop (SB)
	Litter Receptacle	2.0	EA	$	1,500.00	$ 3,000	
	Recycling Receptacle	2.0	EA	$	1,500.00	$ 3,000	
	Powdercoated Steel Bench	2.0	EA	$	1,500.00	$ 3,000	
	Bus Shelter	1.0	EA	$	8,000.00	$ 8,000	
Lighting						$ -	
	Decorative Streetlights, includes foundation	6.0	EA	$	4,000.00	$ 24,000	Pending existing lighting analysis/and design
						$ 936,100	

OPINION OF PROBABLE COST - BY SECTION

AREA: Union Street to Lacey Street

	DESCRIPTION	QTY		UNIT	UNIT COST	EXTENDED COST	COMMENTS
Site Preparation/Demolition							
	Demolition	1683.7	CY	$	113.00	$ 190,300	Class 1B Excavation, includes saw cut and pavement removal
Erosion and Sedimentation Controls						$ -	
	Inlet Protection	12.0	EA	$	200.00	$ 2,400	
	Silt Sock	3957.0	LF	$	6.00	$ 23,700	
Concrete						$ -	
	Granite Curb	4098.0	LF	$	243.00	$ 995,800	
	Cement Concrete Driveway Apron	42.8	SY	$	112.00	$ 4,800	
Masonry						$ -	
	Dry Laid Clay Pavers	22143.0	SF	$	22.00	$ 487,100	
	Unit Pavers	1484.0	SF	$	30.00	$ 44,500	Pocket Park at Dean Street
	Retaining Wall	590.0	SFF	$	35.00	$ 20,700	Assumes 2' Height, widening to allow 12' lanes with parallel parking
Asphalt Paving						$ -	
	Paving restoration along curb	910.7	SY	$	90.00	$ 82,000	Full depth restoration of 24" pavement in front of curbing
	Joint sealer	8196.0	LF	$	2.00	$ 16,400	
Pavement Markings							
	High Visibility Continental Crosswalk						
	2' Wide White Therm	351.0	LF	$	20.00	$ 7,000	
	DWS	288.0	SF	$	80.00	$ 23,000	0695 Cast Iron DWS
Landscape						$ -	
	Topsoil	136.7	CY	$	95.00	$ 13,000	For GSI/Landscape Bumpout Assumes 24" soil depth
	Grass Seeding	1845.0	SF	$	0.25	$ 500	small quantity
	Street Trees						
	3" Caliper Shade Tree	21.0	EA	$	600.00	$ 12,600	
	Tree Grate and frame	21.0	EA	$	2,400.00	$ 50,400	Includes tree grate with frame set in concrete
Site Furnishings							
	Powdercoated Steel Planters	6.0	EA	$	1,200.00	$ 7,200	At Taco Mar Bumpout, Pocket Park, Price Street Septa Stops
	Litter Receptacle	6.0	EA	$	1,500.00	$ 9,000	At Taco Mar Bumpout, Pocket Park, Price Street Septa Stops
	Recycling Receptacle	6.0	EA	$	1,500.00	$ 9,000	At Taco Mar Bumpout, Pocket Park, Price Street Septa Stops
	Powdercoated Steel Bench	8.0	EA	$	1,600.00	$ 12,800	Price Street Stops, Pocket Park
	Decorative Wrought Iron Fence	40.0	LF	$	100.00	$ 4,000	Enclose bumpout at Taco Mar storefront
Lighting							
	Decorative Streetlights, includes foundation	16.0	EA	$	4,000.00	$ 64,000	Pending existing lighting analysis/and design
	2" Conduit for streetlighting	8196.0	LF	$	22.60	$ 185,200	2 conduits typical on each side of street
	Electrical cabling for streetlighting	12294.0		$	3.40	$ 41,800	assume 3 strands per each side of street
						$ 2,307,200	

AREA: Lacey Street to University Avenue

	DESCRIPTION	QTY		UNIT	UNIT COST	EXTENDED COST	COMMENTS
Site Preparation/Demolition							
	Demolition	663.0	CY	$	113.00	$ 74,900	includes removal - existing Concrete sidewalk
Erosion and Sedimentation Controls							
	Inlet Protection	6.0	EA	$	200.00	$ 1,200	
Concrete							
	Granite Curb	1658.0	LF	$	243.00	$ 402,900	
	Cement Concrete Driveway Apron	69.4	SY	$	112.00	$ 7,800	
Masonry							
	Dry Laid Clay Pavers	13966.0	SF	$	22.00	$ 307,300	
Asphalt Paving							
	Paving restoration along curb	368.4	SY	$	90.00	$ 33,200	Full depth restoration of 24" pavement in front of curbing
	Joint sealer	3316.0	LF	$	2.00	$ 6,600	
Pavement Markings							
	High Visibility Continental Crosswalk						NOT SURE IF THIS SHOULD BE A LUMP SUM, OR INDIVIDUALLY CALC'D
	2' Wide White Therm	326.0	LF	$	20.00	$ 6,500	
	Flexible Delineator	0.0	EA	$	73.00		
	DWS	192.0	SF	$	80.00	$ 15,400	0695 Cast Iron DWS
Landscape							
	Topsoil	106.0	CY	$	95.00	$ 10,100	For GSI/Landscape Bumpout Assumes 24" soil depth
	Grass Seeding	1431.0	SF	$	0.25	$ 400	small quantity, hand seed and mulch
	Street Trees						
	3" Caliper Shade Tree	12.0	EA	$	600.00	$ 7,200	
	Tree Grate	12.0	EA	$	2,400.00	$ 28,800	Includes tree grate with frame set in concrete
Site Furnishings							

OPINION OF PROBABLE COST - BY SECTION

	Powdercoated Steel Planters	2.0	EA	$	1,200.00	$ 2,400	University Avenue SEPTA stop
	Litter Receptacle	1.0	EA	$	800.00	$ 800	University Avenue SEPTA stop
	Recycling Receptacle	1.0	EA	$	800.00	$ 800	University Avenue SEPTA stop
	Powdercoated Steel Bench	1.0	EA	$	1,800.00	$ 1,800	University Avenue SEPTA stop
Lighting							
	Decorative Streetlights, includes foundation	10.0	EA	$	4,000.00	$ 40,000	Pending existing lighting analysis/and design
	2" Conduit for conduit	3316.0	LF	$	22.60	$ 74,900	cost per LF of each conduit 2 conduits typical on each side of street
	Electrical cabling	4974.0	LF	$	3.40	$ 16,900	cost for LF of each strand, assume 3 strands per each side of street
Signalization/Signal Modification							
	Signal Design and Installation	1.0	LS	$	300,000.00	$ 300,000	New signal at Sharpless Street
						$ 1,339,900	

AREA: University Avenue through Rosedale Avenue Intersection

	DESCRIPTION	QTY		UNIT		UNIT COST		EXTENDED COST	COMMENTS
Site Preparation/Demolition									
	Demolition	1594.6	CY		$	113.00	$	180,200	includes removal - existing Concrete sidewalk
Erosion and Sedimentation Controls									
	Silt Sock	2516.0	LF		$	6.00	$	15,100	
Concrete									
	Granite Curb	2034.0	LF		$	243.00	$	494,300	
	Cement Concrete Driveway Apron	48.6	SY		$	112.00	$	5,400	
Masonry									
	Dry Laid Clay Pavers	22699.0	SF		$	22.00	$	499,400	
Asphalt Paving									
	Paving restoration along curb	452.0	SY		$	90.00	$	40,700	Full depth restoration of 24" pavement in front of curbing
	Joint sealer	4068.0	LF		$	2.00	$	8,100	
	Thermoplastic, decorative paving treatment	4000.0	SF		$	18.00	$	72,000	High and Rosedale intersection
Pavement Markings									
	High Visibility Continental Crosswalk								
	2' Wide White Therm	335.0	LF		$	20.00	$	6,700	
	DWS	224.0	SF		$	80.00	$	17,900	0695 Cast Iron DWS
Landscape									
	Topsoil	55.6	CY		$	95.00	$	5,300	For GSI/Landscape Bumpout Assumes 24" soil depth
	Grass Seeding	750.0	SF		$	0.25	$	200	
	Street Trees								
	3" Caliper Shade Tree	17.0	EA		$	600.00	$	10,200	
	Tree Grate	8.0	EA		$	2,400.00			Only Trees on SB will require tree grates
Site Furnishings							$	-	
	Powdercoated Steel Planters	2.0	EA		$	1,200.00	$	2,400	Linden SEPTA stop
	Litter Receptacle	2.0	EA		$	800.00	$	1,600	Linden/Rosedale SEPTA stop
	Recycling Receptacle	2.0	EA		$	800.00	$	1,600	Linden/Rosedale SEPTA stop
	Powdercoated Steel Bench	2.0	EA		$	1,800.00	$	3,600	Linden/Rosedale SEPTA stop
	Bus Shelter	1.0	EA		$	5,000.00	$	5,000	Linden SEPTA stop
Lighting									
	Decorative Streetlights, includes foundation	20.0	EA		$	4,000.00	$	80,000	Pending existing lighting analysis/and design
	2" Conduit for conduit	4068.0	LF		$	22.60	$	91,900	2 conduits typical on each side of street
	Electrical cabling	6102.0	LF		$	3.40	$	20,700	assume 3 strands per each side of street
Signalization/Signal Modification									
	Signal Design and Installation	1.0	LS		$	300,000.00	$	300,000	New signal at University Avenue
							$	**1,862,300**	

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